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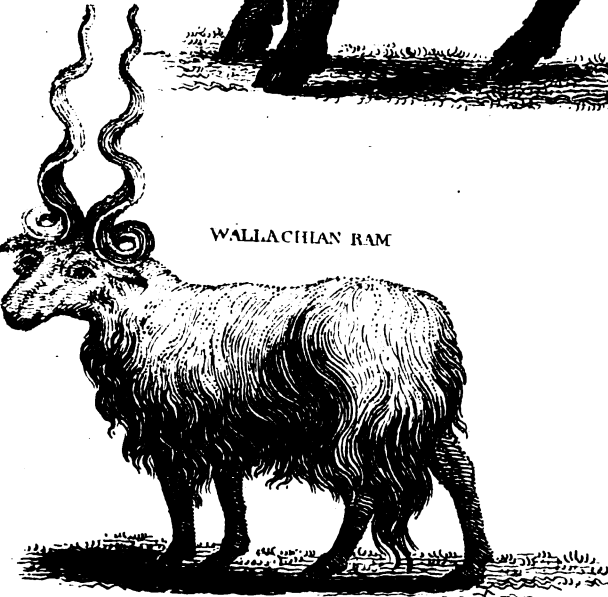
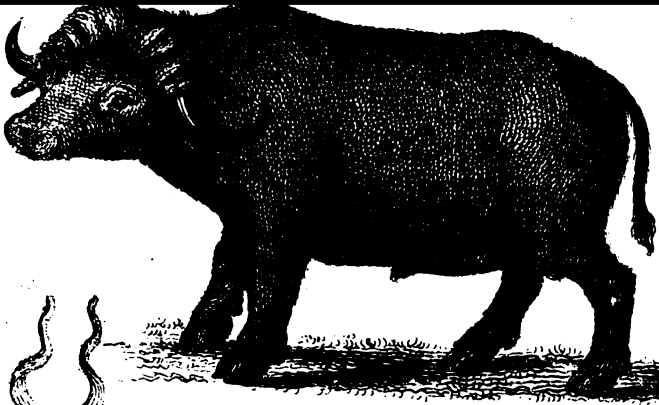
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The cabinet;

WISH VS THE WIND SOUTH.



DANIEL B. FEARING
NEWPORT R. I.

PLS. 306. 1898



12.2.07

THE
CABINET;
OR A
NATURAL HISTORY
OF
QUADRUPEDS, BIRDS, FISHES
AND INSECTS.
ILLUSTRATED
WITH COPPERPLATES.
EXHIBITING
FIGURES OF ABOVE SEVEN HUNDRED ANIMALS.

IN TWO VOLUMES.

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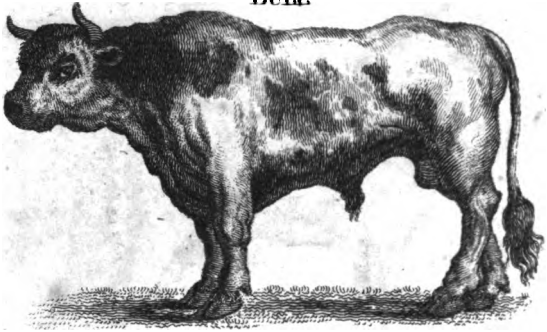
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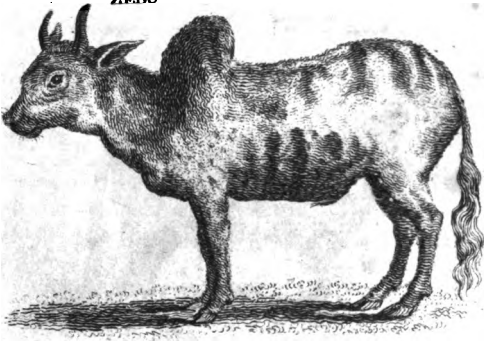
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Plate II
BULL



ZEBU



AMERICAN BUFFALO

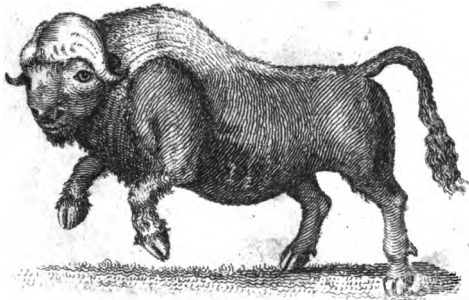
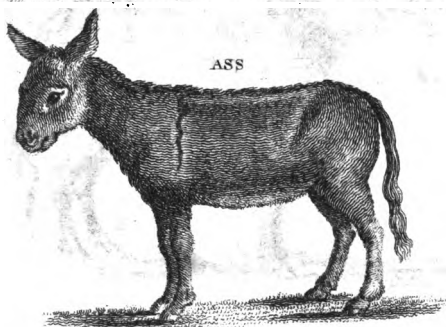
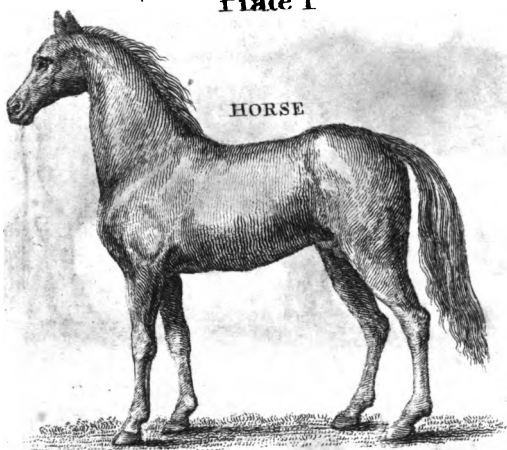


Plate I



NATURAL HISTORY

OF

QUADRUPEDS.

DIVISION I.

HOOFED QUADRUPEDS.

SECT. I.—*Whole Hoofed.*

HORSE.—*Genus 1.* **A**MIDST the wonderful works of nature, objects that are endowed with motion and life are more immediately recommended to the notice of man. Attention is sooner attracted to the fish that swims in the water, than to the nature of the fluid. The elegance, the splendour, and the vivacity of the feathered race are still more attractive; but, with the class of quadrupeds, where man finds his steadiest friends, and most formidable enemies, he is peculiarly interested. At the head of this class, and among other valuable assistants,

The HORSE, (Pl. 1.) who is a domestic in most nations, claims the highest regard. Graceful in his form, he is so hardy in his nature, and so pliant in his temper, that the tasks assigned to him are various, all of which he executes with equal fidelity. If he be trained to war, his generous disposition swells to enthusiasm that seems to court danger, yet amidst the noise and tumult of battle he is obedient to his rider. He delights in the race; and is so ambitious of success, that his ardour is ex-

A

NATURAL HISTORY.

cessive. He is no less emulous of the honours of the field. No obstacle which his master wishes him to encounter deters him, he overleaps the barrier, and pauses not at the precipice, but increases in ardour in proportion to his difficulties. If he be trained for more servile employment, his cheerfulness and perseverance on the road is unequalled, and his patience in the draught exhibits to us, that the spirit of humility is inherent in the most magnanimous of animals. The Horse, in his wild state, is found in various parts of the world. In Arabia, where he is most remarkable for swiftness and beauty, he roams at large in the desert. The Kalmuks are said to hunt down horses with the hawk, who, fixing on the forehead of the animal, so tires and torments him, that he is speedily confounded or exhausted, and falls an easy prey to his pursuers. Vast herds of wild horses are found in South America: they are the offspring of those introduced by the Spaniards, and have multiplied so amazingly, that they are found in almost every part of that extensive continent. In a domestic state the greatest variety of fine horses are produced in England: In consequence of the rage which has long prevailed for horse-races, incredible sums have been expended on studs. A mixture of the various breed has thus been readily obtained, and whatever could improve the good qualities, or correct the bad, has so strictly been attended to, that England has produced families of horses famous for every excellency peculiar to those of different countries. The celebrated Childers is known to have frequently run at the rate of 82½ feet in a second, nearly a mile in a minute. Some horses will trot 15 miles in an hour, for hours successively. Mill horses often carry at a load 910 pounds; and the British cavalry are mounted on stronger and more active horses than those of any other nation in Europe. Mares go with young 11 months and some days. Both horses and mares live between 25 and 30 years.

The Ass. (Pl. 1.) Were we deprived of the services of the Horse, the Ass would, in a great measure, supply the deficiency. Yet to this very merit the Ass seems to

owe an unusual portion of abuse, and his name has become proverbial for stupidity. Too much exposed to comparison, his patience and perseverance procures him but contempt, when contrasted with the more productive labours of the stronger bodied Horse. Such is the selfishness of gratitude; the same hard fate, however, does not universally belong to the Afs. In India, Egypt, Barbary, and Guinea, he enjoys a climate, where for strength and usefulness, he is said even to exceed the Horse. So congenial to him is warmth, that the Kaulan, or Wild Afs, which inhabits Tartary, is not found farther north than lat. 48. and retreats in winter to the warmer climates of India and Persia. The Afs is temperate in the quantity of his food, and is contented with herbage of the most rigid and disagreeable quality. He feeds on what other animals turn aside from with disdain; but he is delicate in his drink, and rejects the water that is not perfectly pure. He sleeps little, and seldom lies down to sleep. When young, the Afs is gay, swift, and gentle; if he grows dull, lazy, and stubborn as he grows older, it must be greatly owing to the severity of treatment that he meets with; for he is sensible of caresses, and knows and forms an attachment to his master. The milk of the she-afs is medicinal, and it is chiefly on this account that the race is valued in Britain. The skin is made into sieves, drums, shoes, and parchment, which, covered with a thin coat of fine plaister, is used in pocket-books.—The *Mule* is the production of the Horse and Afs; the Mules produced by the Jack-Afs and Mare are larger than those whose male parent is Horse. They are very hardy, and have more the form of the Afs than the Horse. They are remarkably sure footed; and, on this account, persons of quality in Spain prefer them for drawing in their carriages.

The *ZEBRA* (Pl. 1.) is of the shape and size of a common mule, less than the horse and larger than the Afs. This animal has a singular appearance, being striped all over alternately brown and pale buff, or black and white. The head, neck, and body are banded as it were round with ribbon, which, encompassing the

legs and thighs in the same manner, give the strips a contrary direction from those on the neck and body, and altogether produce the effect of a little horse in masquerade. The Zebra is vicious and untractable in his temper, and has hitherto resisted every effort to make him of use for domestic purposes. He is hard mouthed, and kicks at every one who comes near him. The Zebra which Buffon describes, though great pains had been taken to tame him, continued so unmanageable, that two men had constantly to hold the bridle when a third got on his back; and Sparrman relates, that a rich burgher at the Cape took it into his head to yoke, in his carriage, some Zebras that he had brought up as tame as possible. The animals were no sooner at liberty to proceed, than they ran back to the stable with the carriage and their master in it, in so furious a manner that neither he nor any of his neighbours ventured to repeat the experiment. These animals appear to be natives of Africa, are seen in large troops, and abound near the Cape.

SECT. II.—*Cloven Hoofed.*

OX.—*Genus 2.* **THE OX** (Pl. 2.) is not so much the companion of man, and adds less to his splendour than the horse, but it administers more to his daily and domestic wants. Besides the milk of the Cow, which is made into butter and cheese, and the beef, which is at once the greatest luxury and the most nourishing food, there is scarcely an atom of this most useful animal that is not valuable. Candles are made of the fat and suet, the blood is an excellent manure for fruit trees, and is the basis of Prussian blue. The dung is preferred as a manure for dry and light soils. From the bones is extracted a japaning oil, from the hoofs glue. The horns supplied windows and lanterns with a transparency, before the manufacture of glass; they are still used for combs, knife-handles, drinking-vessels, &c. Calves skins are made into vellum, they are also tanned, and with the leather manufactured from the hide of the Ox are supplied the various parts of shoes, boots, harness, &c. The Ox offers a willing service to the husbandman,

and readily labours in the waggon or at the plough. He is eminently supplied with patience and strength, he is kept at smaller expence than the horse, and his carcase may be fattened when he is old or lame. In Caffraria he is honoured with the fadle, and is managed by a rope which is fastened to the ends of a wooden peg run through the gristle of his nose ; and he possesses such extraordinary vigour and speed, that Sparrman says, an Hottentot who was fond of hunting trained an Ox, upon which he wearied-out and run down elks. So many various recommendations are possessed by an animal almost universally diffused and domestic in all temperate countries. But it would appear that its domestic docility is not effected at once ; all the varieties of the Ox, in a wild state, are untractable, and the Bull is never to be depended on. He is at times so extremely ferocious that he attacks whoever comes in his way ; if the object of his fury is beyond his reach, in perfect madness he beats the ground with his hoofs, and tears up the turf with his horns, but the cow and the bullock, if they have not been improperly managed, are never dangerous. The pastures of no country are more favourable for this animal than those of Britain. The humid clouds, that water her fields, are productive, in atonement for their frequent gloom, of the greatest variety of plants, and of the richest verdure ; and hence, from the earliest times, Britain was remarkable for numerous herds. Her native breeds were not perhaps large, but, by a proper mixture of foreign kinds, England now possesses horned cattle of a very superior size. The Lincolnshire kind derive their size from the Holstein breed ; and the large hornless cattle, that are bred in some parts of England, come originally from Poland. Those of the Highlands of Scotland are exceedingly small, which renders them inferior as milk-cows, but thousands of them are sent annually to England, where they are preferred for the table. The Welsh cattle are larger than those of Scotland. The cow goes with young nine months, and has seldom more than one calf at a time. Such calves as are not intended to be preserved, are fattened with new eggs, boiled milk and bread, and killed in the course of eight or ten weeks. They attain their full growth at two years ; from three

to nine they are in perfect vigour ; but, after that age, they are generally fattened for slaughter. The colours of this animal are very various, they are black, white, reddish, grey, brown, dun, striped, and spotted.

The BISON (Pl. 3.) inhabits Mexico and the interior parts of North America, where they are found in large herds mingled promiscuously among stags and deer. The morning and evening is their time of feeding, and during the sultry part of the day they retire to the marshes, and shelter among tall reeds. They are shy and timid, but they become dangerous when wounded. When attacked by wolves they form themselves into a circle, which encloses the weaker ones, and presents an impenetrable front of horns to the enemy. But this manœuvre, which is imputed to their sagacity, is not always equally successful. They have such a dread of fire, that the Indians destroy them by setting fire to the grass that surrounds them, when they crowd together in the center, and are easily killed. This is often done on so large a scale that 1500 or 2000 beeves are said to be the fruits of an expedition. The fore part of the Bison is very thick and strong, the hind part is weak and slender, his shoulders are loaded with a large bunch ; and this, as well as the head, is covered with long locks of rust coloured woolly hair, which overhangs the eyes and greatest part of the horns ; in winter the whole animal is so cloathed, but in summer the hinder parts are bare.

The ZEBU (Pl. 2.) or little Indian Buffalo is about the size of a calf six months old. It has a bunch on its shoulders, and almost upright horns. It is a mild and peaceful animal, and is used in the East Indies for drawing coaches and for riding.

The BUFFALO (Pl. 3.) of the Cape of Good Hope is a gigantic and ferocious animal. That from which the figure was taken was eight feet long, and five feet and a half high. He is hunted by the Hottentots, who, though they are emulous in the pursuit, must balance their intrepidity with circumspection ; for the buffalo, when he rushes from his lurking places in the woods, assails his enemies with his horns, and tramples horses, oxen, and

PLIV.



BROAD TAIL'D SHEEP

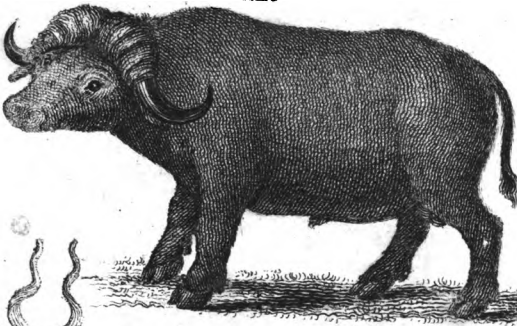


Plate III.

BISON



BUFFALO



WALLACHIAN RAM



men under his feet. This ferocity is attended with special acts of cruelty and insult. He stands over his victim, tramples on it with his hoofs, crushes it with his knees, and tears it to pieces with his teeth and horns. He is so very swift that the person he pursues must be well mounted not to be overtaken, and he is so strong that a young one, three years of age, that was yoked in a waggon, could not be moved from the spot by the united exertions of six tame oxen. The lion, who breaks the back of the strongest domestic ox at a blow, does not kill this species, even when he is fixed on his back, without great difficulty; and it frequently happens that he perishes in the attempt. This formidable animal, however, generally flies from the hunters, but if he turns on his pursuer he must depend on the swiftness of his horse, and take the nearest hill, when the buffalo, from the weight of his body, becomes a very unequal match. Down hill, however the Buffalo has the advantage, and the person pursued is in the greatest danger, if not relieved by the well-timed dexterity of his companions. The Buffalos delight to wallow in the mire. They are of a dark brown colour, and thinly covered with hair; they inhabit India, Egypt, and Italy, where they are tamed, and very useful in the draught.

SHEEP.—*Genus 3.* **H**E who cannot readily admit that the inferior orders of nature were created for the use of man, must at least gratefully admire his elevation to that sphere, where he is favoured with so much service, and permitted so many enjoyments. Among the animals who contribute so largely to his support and conveniency, the usefulness of the SHEEP (Pl. 4.) is hardly exceeded by that of the ox. The flesh is a delicate and wholesome food. The milk is strong tasted, but being very thick it yields a great quantity of most excellent cheese. Its bowels, its bones, its horns are articles of utility. Its dung is valuable manure. Its fleece, which, in the ruder state of society, was always a natural covering against the inclemency of climate or the rigours of winter, is of the highest value. The dressed skin has many uses, but the wool, when manufactured into cloth and flannel is of universal utility, and in England is a principal

source of riches. Sheep, if they are not remarkable for sagacity, are not stupid. In the flock they follow the ram as their leader; and the courage of the ram is not unworthy of their confidence, for when the flock is molested he will attack and severely wound dogs and even men in its defence. The mutual affection between the female parent and her offspring is demonstrated by fond actions, and uttered in responses, which, amidst the renovating beauties of spring, give a pleasing animation to rural scenery. The ewe is not provided with arms or courage sufficient to defend her young, but when she is deprived of it she bleats, and for some time laments the loss with the tenderest complaints. The Sheep is a particular favourite of infancy and youth, and is sometimes reared for their gratification, when it discovers considerable docility, and forms a strong attachment to its companions. The Sheep produces only one lamb at a time. It thrives best in hilly countries, it drinks little, and in damp situations is subject to many disorders. Of this useful animal there are many varieties, several of which are found in Britain. Those of Herefordshire, Devonshire, and Cotswold-Downs are noted for producing fine fleeces. Warwickshire, and particularly Lincolnshire, are possessed of very large breeds that yield a great abundance of excellent wool. In Scotland the breed of Sheep is generally small, and the wool coarse, though some of the islands produce sheep that are even superior to those of Spain for the fineness of their wools; and as great attention has of late been paid to the subject, we may hope that the woollen manufacture, in its various branches, will soon contend for a share of that celebrity which the isles of Shetland, and Aberdeen, have long possessed for fleecy hosiery. Of foreign Sheep, those of Spain have always been eminently remarkable for the fineness of their wool. The Wallachian Sheep (Pl. 3.) are natives of Candia, and remarkable for large spiral horns. The north of Europe and Ireland furnishes varieties of the Sheep with three, four, or five horns, (Pl. 4.). Whilst, in Persia, Assyria, Arabia, Egypt, and Barbary the singularities of the Sheep (Pl. 4.) are principally in the size of the tail, which, in some breeds, grows so incommodiously bulky, that it must be supported with a wheeled carriage. The Argali or Wild Sheep of Tartary is

believed by some to be the parent of our domestic varieties ; but on this, and the number of species, naturalists are not agreed.

GOAT.—*Genus 4.* **T**HE favourite haunts of this animal (Pl. 5.) are the rocky and inaccessible heights of lofty mountains, where he feeds upon plants that are rejected by the sheep or the cow. Hemlock, euphorbium, and several mosses, are delicacies ; and the bark and leaves of most trees he devours with avidity. The **IBEX**, or **GOAT**, in a wild state, is dangerous to pursue, and exceedingly difficult to take or kill. His dexterity in leaping from rock to rock is amazing : He looks fearlessly down from the most frightful precipices, and springs securely upon points where no other animal could find a footing. He is said to exhibit a considerable share of cunning, to induce the huntsman to follow him over precipices where he leaps about without danger. If he throws himself from a height, which he frequently does, he falls on his horns, and escapes unhurt. It is said, too, but the story is rather wonderful, that, to avoid the hunter, he will hang himself by the horns, upon such trees as project over precipices. In his domestic state, the goat is sensible of caresses, but he is subtle and vicious. His ordinary motions betray the caprice of his character : He walks, runs, leaps, retires, and approaches in the most irregular manner. He is often kept in studs, where his odor, which is sometimes as strong as *assa fætida*, is believed to prevent distempers among the horses. He is so fond of the shoots and tender bark of young trees, that in gardens and plantations he is destructive in a great degree. It has been found expedient, on some occasions, to break his teeth short with pincers : but, where goats are preserved for their milk, this practice would certainly be a bad one ; for the milk of the she-goat must be salubrious and medicinal in proportion to her promiscuous feeding on the tops, tendrils, and flowers of the mountain-shrubs. Places where goats are fed in Scotland and Ireland are much resorted to in the summer months, by such as have consumptive habits ; where the use of the whey has been

said to effect extraordinary cures. The Welch goats are remarkably large, and much esteemed for their long and fine hair. The goat goes four months and a half with young, and generally has two at a time.

The *Goat of Anzora* (Pl. 5.) has a shorter body than our domestic goat. Its hair is soft, and glossy like silk, of a silver white colour, and hangs in curling locks eight or nine inches long: It is spun into thread, and wrought into the finest camblets; but the Turkish government prohibits the exportation of the hair, because the spinning of it gives employment to a great number of hands.

CAMELEOPARD.—*Genus 5.* **THE CAMELEOPARD** (Pl. 6.) is a native of Africa. He is the tallest of animals, and commonly measures, from the ground to the crown of the head, about fifteen feet. To the top of the shoulders, the height is ten feet; but at the loins it is little more than eight, which produces a singularity of appearance to which very different manners have been ascribed: He has been represented as incapable of reaching with his mouth, so as to crop the grass upon the ground: His walk has been said to be an awkward limp; and that he was slothful, and unwieldy in his flight. But though his general appearance vindicates this character, and though from the height of his shoulders it be evident that he is remarkably formed for feeding on the leaves of trees, yet it is known that he commonly grazes the fields, bending one of his knees, at the time, like a horse. He does not limp in walking, but sometimes paces, and sometimes gallops; and, when pursued, his speed is such that a fleet horse is necessary to hunt him. The manners of the Cameleopard are mild and peaceful. He expresses no resentment, even when wounded. The Hottentots hunt and kill him with poisoned arrows. The flesh of the young is tolerable food, and the marrow is reckoned a perfect delicacy. But the history of this animal is yet imperfect: If his dispositions are mild and gentle, as they are represented, it is extraordinary that he is not any where turned to domestic purposes. The barbarity of the people among whom he is found, does not account for the deficiency.

Plate VI.

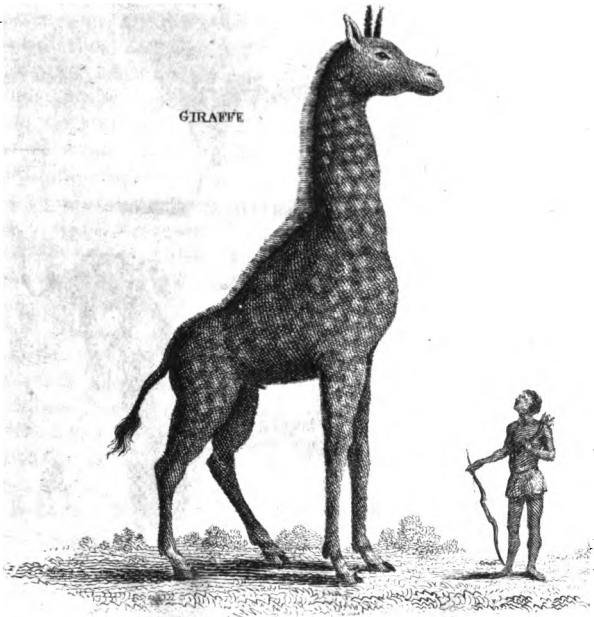
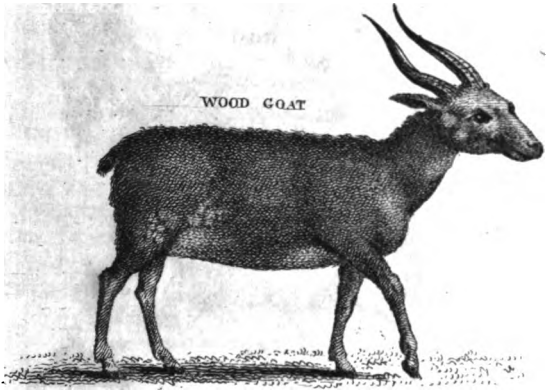


Plate V.

GOAT



FEM. GOAT



GOAT OF ANGORA



ANTELOPE.—*Genus 6.* **A**NTELOPES (Pl. 7.) have hollow horns, directed backward; limbs slender and elegant; are characterised by small holes under the eyes; are amazingly swift and agile, and seem to occupy an intermediate space between the goat and the deer. Few of them are found in Europe: in many parts of Asia, but particularly in Africa, they associate in large herds. None have been found in America. They feed rather upon shrubby, than upon grassy pastures. They are remarkable for beautiful eyes; and an eastern poet has paid a fine woman the highest compliment, when he compares her eyes to the eyes of an antelope. Above twenty species are described by naturalists. The following are the most remarkable.

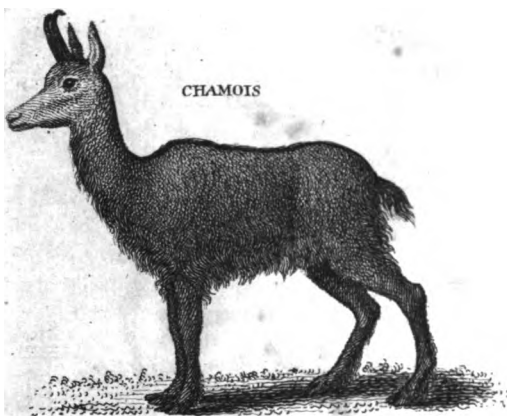
The **GNU** (Pl. 7.) bears in part a resemblance to the horse, to the ox, and to the stag, and is characterised as an antelope, principally by the pores under the eyes. He is as large as a middle sized horse, and his body bears the same elegant proportions. He has a stiff, erect mane; and his tail is furnished with long hair: His head is like the head of the ox, horned, thick, and large; like the deer, his legs are long, slender, and elegant. He is a lively and irritable animal; and, when pursued, exhibits a vicious disposition by curvetting, plunging, flinging out behind with one or both legs, and butting against molehills with his horns. It inhabits the south of Africa, where it has obtained its name from the Hottentots, on account of its cry. The voice of the tame fawn and the bleating of the common calf, are, however, quite different. The flesh of the Gnu is agreeable, and very nourishing food.

The **CHAMOIS** (Pl. 7.) is an inhabitant of alpine countries, where he pampers himself with the highest flavoured plants, culling their flowers and tenderest buds. His blood thus becomes so hot, that the summers sun is oppressive to him, and he seeks for a retreat under masses of congealed snow and ice, in the caverns among the rocks, or in the depth of the gloomy forests that climb the northern declivities of the most scabrous mountains.

In winter, he descends into the lower forests, and contents himself with pine leaves, and such green or dry herbs as he can procure by scratching with his feet among the snow. The forests, however, that he most delights in, are those that abound with rocks and precipices. Hence the hunting of the chamois is very difficult. Sometimes they are hunted, like stags and other animals, by posting hunters at the narrow passages, while others beat about, and raise the game. But the mode most in use is for the hunters to watch their opportunity behind rocks or stones, and shoot them with musket balls. In this case, care must be taken that the wind blows in the face of the hunter; for, if he hunts with the wind, the chamois is so acute in the sense of smelling, that, at the distance of half a league, he will perceive the scent. When this happens, or when he hears any thing which he does not see, and which alarms him, he whistles, or blows, with a force that makes the rocks and forests re-echo to the sound. He pauses for a moment, looks around him on every side, and forthwith begins to whistle from time to time. He continues this whistling and watching till his agitation is extreme. He then strikes the ground with his feet, leaps upon the highest stones, looks anxiously around, hurries from one eminence to another, till, discovering the object of his fear, he flies off. The skin of the Chamois, when dressed, is a strong and supple leather, in universal request for riding breeches and gloves.

THE BARBARY ANTELOPE, or Gazelle of Buffon, (Pl. 7.) is about the size of a roebuck, and of a most elegant and active make; so rapid in its speed, that the greyhound is left behind in the chase; and the sportsman resorts to the assistance of the falcon, which he has trained for the purpose of seizing on and annoying the animal in its flight, that the dogs may have time to overtake it. In India and Persia, where they are found in numerous herds, they are hunted by a kind of leopard, who depends not on the swiftness of his feet, but lies in wait for him with a sudden spring, which, should the animal escape in the first essay, its safety is secured by flight.

Plate VII.



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Plate VIII.



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The **HARNESSED ANTELOPE** (Pl. 8.) is one of the largest of this class, being four feet and a half from the nose to the tail. The hair over the whole body is short and smooth, and of a deep tawny colour; but the sides are most singularly marked with two longitudinal stripes, or bands, crossed by others from the back to the belly. This appearance suggested to Mr Pennant the name which is here adopted; the animal being the Guib of Buffon, and the Bonte-Bok of the Cape of Good Hope.

The **GUINEA ANTELOPE**, or Grim (Pl. 8.) is of a diminutive size, being only about eighteen inches high. Its legs are slender, its neck long, and its form altogether elegant. The few which have reached Europe have come from Guinea, which is considered to be the country of this species.

The **SPRINGER** (Pl. 8.) is an elegant animal, about two feet and a half high; light brown is its predominant colour on the neck and sides, but stripes of a deep amber separate this from the stripes that are otherwise white. The breast and belly are white, and a white stripe runs from the tail half way up the back, which the animal has the power of extending to a circular form at pleasure. This expansion particularly takes place when he takes a high leap, which is his constant practice when pursued; and from this habit he has acquired, at the Cape of Good Hope, the name of Spring-Bok, which signifies the leaping or bouncing goat. These animals migrate from the interior of Africa to the neighbourhood of the Cape, in small herds, and remain there two or three months; they then join in companies, and set off, to the amount of many thousands, spreading over the country, and laying bare the fields in their rout. They, on the other hand, are pursued by lions, hyænas, and other beasts of prey, which make great havock among them. The lion is so notoriously their enemy, that they are called by the Hottentots his flocks of sheep; and, where one of those rapacious animals are, his place is easily known by a vast void which is discernible in the middle of the timorous herd.

The **WHITE-FOOTED ANTELOPE** (Pl. 9.) is about four feet in height. The male is marked immediately above the fore hoofs with a white spot, and with two spots on each of the hind hoofs. The female has each foot marked by three black and two white bands. The colour of the male is dark grey; the female is pale brown. They are natives of the remote parts of India. In the days of Aurunge Zebe, they were greatly the objects of chase, and called Nyl-ghau, or blue or grey bulls. Under that prince, the mode of hunting them was to inclose them by an army of hunters within nets, which were drawn closer and closer till they were confined within a narrow precinct. The king and his courtiers then entered the circle, and, with arrows, spears, or muskets, killed the animals in such numbers, that they afforded presents for his great men through all parts of the empire. They are frequently brought to England; and have even produced young here. The males, in fighting, drop on their knees at a distance, approach in that attitude, and, when near, spring to each other with the greatest fury. At times, they are said to be very vicious; but, on the whole, they are gentle and tame, will feed readily, and lick the hand that gives them food.

The **RED ANTELOPE** (Pl. 9.) is about the size of a roebuck. Its ears are longer than its horns, and the body is all over of a reddish colour. It inhabits Senegal and the Cape, where it is very frequent, and is common food.

The **CORINE** (Pl. 9.) inhabits Senegal, and is less than the former. It has very slender horns. Its neck, body, and flanks are tawny. Its belly and inside of the thighs are white. It is amazingly swift and agile.

The **WOOD GOAT**, (Pl. 6.) or Bosch-bok, of the Cape, is so called from being the only gazel in Africa which may properly be said to live in woods and groves. Goats, it is commonly observed, are bad gardeners; and this observation is peculiarly suitable to the Bosch-bok, who does much mischief in the vineyards and kitchen-gardens of the Cape colonists. He discovers much address in avoiding the snares, traps, and ambuscades laid for him. He

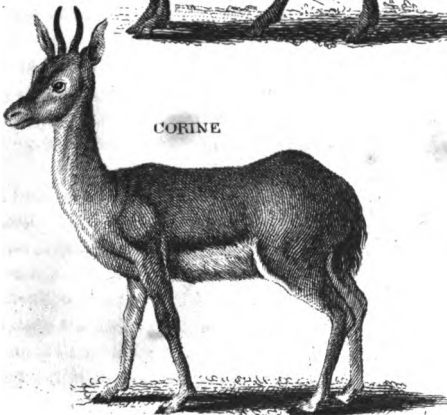
Plate IX



WHITE FOOTED ANTELOPE

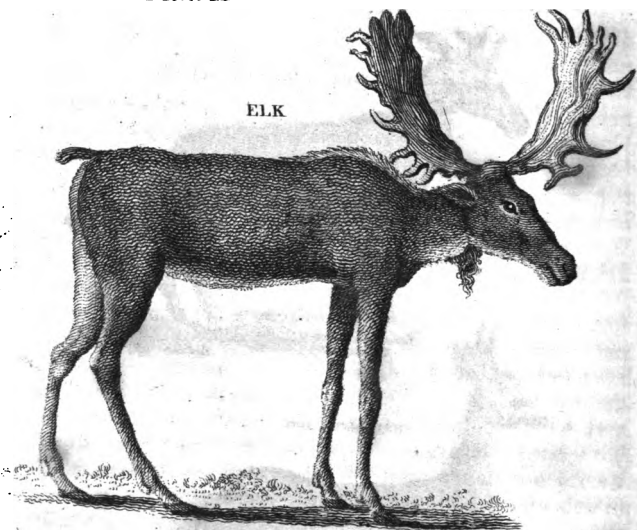


RED ANTELOPE



CORINE

Plate X



is not so swift but that he is sometimes overtaken by dogs: In this case, he puts himself in a posture of defence. Like the white footed antelope, he drops upon his knees, and commonly sells his life at a very dear rate, by goring and killing some of the most valuable dogs. Dr Sparrman, who was the first to describe this animal, has been very elaborate in his account of it. The female has no horns; and the species is monogamous, or keeps in pairs.

DEER.—*Genus 7.* **THE ELK** (Pl. 10.) is the largest animal of the deer kind, and found in the northern woody regions of Europe, Asia, and America. Its limbs are so remarkably long, and its neck so short, that, when it grazes, it is always against the ascent. It lifts its feet very high when it walks, and will step with ease over a gate five feet high. This length of legs renders its gait singular and awkward; but its trot, though shambling, is yet exceedingly swift; and it is remarkably well formed for wading into rivers, or lakes, in search of water plants. Its most common abode is in woods, where it browses the boughs of trees; and it always carries its head to a horizontal posture, lest its large palmated horns should be entangled among the branches. It is mild and inoffensive, except in the rutting season, or when it is wounded, when it will turn upon its enemies, and make a vigorous defence with its horns and hoofs. The savages of North America have different modes of hunting the elk. Sometimes a multitude of them surround a large tract of country, and rousing the animal with their dogs, they press them from all quarters in one direction, to some great river or lake, where a number of hunters are stationed in canoes, forming a crescent of large extent with the shore; when the animals are driven into the water, they are then completely surrounded, and are killed with clubs and lances. Another method is more artful. A large inclosure, resembling the two sides of a triangle, is formed with stakes hedged with branches of trees, and entering by a narrow opening at the bottom into another chamber, which is fenced in the same manner. The woods being ranged, and the country roused for some extent, the elks, as

well as other deer, are driven into these inclosures, where many of them are caught in snares, formed of slips of raw hides, and such as are not secured in this manner, are shot with the arrow of the hunters. It is believed that the elk might be easily domesticated. Mr Pennant says, that in Sweden, formerly, they were yoked in the sledge, but this is not any where practised at present. The young ones follow the dam a whole year. The flesh of the elk is excellent, the tongue is particularly so, and the nose is perfect marrow. The skin, dressed into buff, is strong, soft, and light, and the hair is of great use for mattresses and saddles.

The REIN-DEER (Pl. 12.) It is pleasing to contemplate the assistance which nature, in every region, has bestowed upon man; and, perhaps, the history of no animal more excites this grateful emotion, than the history of the rein-deer. In the regions which he inhabits, the camel of the torrid zone could not exist, the horse of the temperate climate would degenerate into a dwarf, and in the deserts of snow and ice, he would otherwise be useless. The serviceable cow and the sheep, deprived of their accustomed pastures, would sink in the scale of usefulness; but the Rein-deer, mild and amiable in his manners, is, to the Laplander, a consolation and recompence for his otherwise unkindly situation, and is to him the substitute of the camel, the horse, the cow, the goat, and the sheep. The milk of the Rein-deer is a wholesome beverage, and yields good cheese, and not bad butter. The flesh is eaten, either fresh, salted, or dried; the skin, with the fur, is made into garments for both sexes; it also affords harness; the tendons are made into bow-strings, and when split are spun into thread; the horns yield glue, and the bones are made into spoons; but, the characteristic of the Rein-deer is found in the facility with which he is taught to draw sledges over frozen lakes or rivers, or over the snow, which during winter, makes a vast desert of the whole region which he inhabits. As soon as the rein-deer is yoked in the sledge, he sets off with amazing velocity, and conducts the traveller in safety through the most dangerous and difficult ways. It is said, that he will travel 150 versts, or 112 English miles

in a day. From 30 to 60 miles he will travel without rest; but when urged beyond his strength, he turns furiously on his driver, whose only recourse is to overturn the sledge, and hide himself beneath it. In winter, he feeds on rein-liverwort, a species of moss, of which he is very fond, and on which he grows fat; this he procures by digging through the snow with his hoofs; in summer, he eats the leaves and buds of trees in preference to grass. Tame Rein-deer are kept in herds, and a rich Laplander will possess a thousand. The young follow their mother two or three years, and attain not their full growth till the fourth year. Their age never exceeds sixteen years.

The STAG, (Pl. II.) or Red-deer. This elegant animal is universally known as a favourite object of the chase. Man attacks the ferocious animals in self-defence, but his own ferocity singles out the Stag, as the prime victim of his pleasure. It is not necessary that he pleads in this case; it is the indulgence of a cruel appetite. As a counter part to this gloomy reflection, it is necessary to remark, that the chase combines the efforts of many in a hardy and healthful exercise; that it stimulates courage, inures to fatigue, and, in luxurious and effeminate times, preserves something like those habits, which man, for self defence, ought never to forget. Hence, hunting the Stag was a favourite diversion with the Greeks and Romans, and has continued such with all civilised nations. In France and England, it has long been cherished as an art, and accommodated with a set of phrases, which can only be acquired by experience. Vast tracts of land were formerly appropriated in England to this amusement; but hunting grounds were limited, in proportion as property became divided, and tillage and husbandry increased. The diversion is now chiefly enjoyed in parks, of which England boasts of a greater number than any other kingdom in Europe; and if the stag is allowed to take the open country, it is only at periods of the year when no injury can be sustained by the husbandman. When the Stag is unharboured, the alarm is given to uncouple the hounds, the huntsman winds his horn, and encourages the pack with

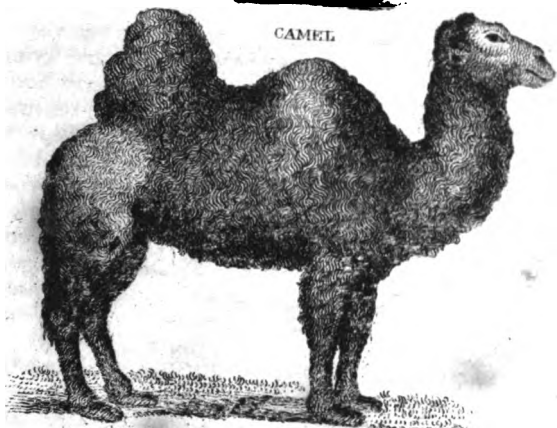
his voice. At this time, it is the business of the hunters to separate so, as to recall the dogs that may stray after false game. The huntsman should accompany and encourage his dogs without pressing them too hard; he should assist them in detecting the arts put in practice to deceive them; for the Stag, with remarkable address, tries every means of escape, he returns on his former steps, attempts to mingle again with the herd from which he was singled out, endeavours to raise hinds or younger stags to distract the dogs in their pursuit; he then flies with the swiftness of wind, leaving the men and dogs miles behind him. Their noise and cries no longer reach his ears, he stops, looks eagerly around him; but again he is alarmed, he starts, and renews his flight. The dogs that have traced his footsteps with great sagacity and precision, are in full cry. He redoubles his speed, or springing aside, he squats on his belly, to conceal himself from his pursuers. If his arts are vain, and his strength exhausted, his pace becomes heavy, his mouth is black and dry, his tongue hangs out, and the tear glistens on his starting eye-balls. His scent increasing as he is heated, announces his passage to the dogs, and their ardour accelerates the pursuit. His arts and doublings are in vain: For him there is no safety on the earth he treads; he betakes himself to the nearest river or lake, and plunges into the stream; he avoids the overhanging boughs and plants that would retain his scent; but when he is driven from the water, he is incapable of running far, and desperately turning on his enemies he stands at bay, and collecting all his remaining strength, he furiously assails both men and dogs, till cut down with the hanger of the huntsman, or overpowered by the number of dogs, he expires. The Stag is between four and five feet high, is of a reddish brown, he sheds his horns annually. The hind goes between eight and nine months with young; and, about the end of May, brings forth one, but never above two, at a birth. She then retreats with her young to some dark thicket, where she tends it with affection, and guards it with courage from the eagle, the wolf, and even from the Stag himself. The flesh of the Stag is not so delicate as that of the other deer kind; he is, therefore, rarely

Plate XII

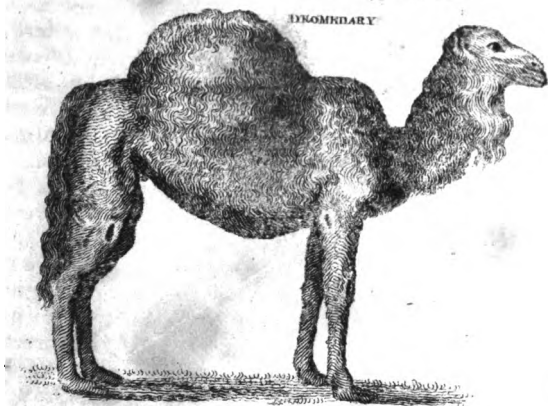
INDIAN MUSK



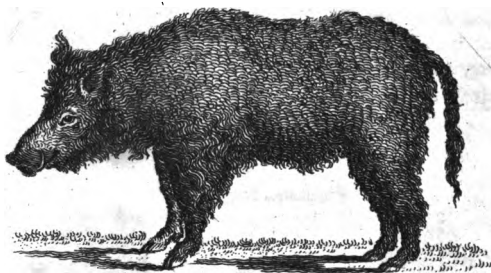
CAMEL



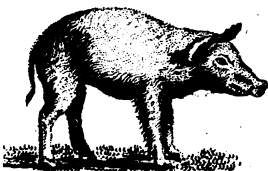
DROMEDARY



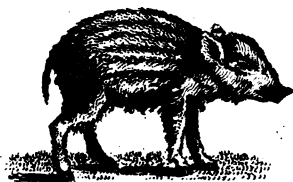
WILD BOAR



SUCKING PIG



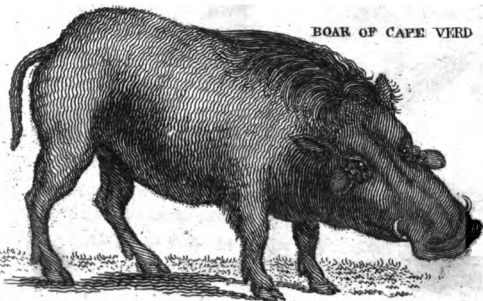
YOUNG WILD BOAR



BABYROUSSA



BOAR OF CAPE VERD



to be found in parks. Formerly, great herds of red deer, in a wild state, were every where met with in Scotland, but they are now extinct, except in the Highlands, where they are still numerous. The Stag is found in the northern parts of Europe, Asia, and America; but, though an inhabitant of the north, he never appears in the extreme high latitudes. He lives 30 or 40 years.

FALLOW-DEER, OR BUCK (Pl. 10.) is less than the stag, and has palmated horns. In other respects, his form and manners are the same; yet does the Fallow-deer, though he inhabits the same forests, never associate with the stag. The colours of this species are various; reddish, dark-brown, spotted, and often white. Venison, or the flesh of the fallow-deer, is in high estimation, as delicate and nourishing food; hence herds of them are often kept in parks prepared for their reception. If the herds be large, they divide themselves into smaller parties, among which contests frequently happen; they then attack one another, and in these trials of skill, exhibit wonderful proofs of order and obstinacy. In the rutting season, he is not so much infuriated as the stag, but is frequently involved, by rivalry, in terrible conflicts. The doe is never furnished with horns.

The ROE-BUCK (Pl. 11.) This elegant animal is seldom two feet and a half high. As an object of the chase, if he be not so vigorous, he is more crafty than either the stag or fallow-deer. He is distinguished from these animals by his horns, which are upright and forked at the ends; but what characterises the Roe-deer, is the peculiarity of manners which induces them not to associate in herds, but to live in separate families, forming, by the guidance of instinct, a kind of nuptial attachment, not unlike that, which among rational beings, requires the force and authority of laws to secure. The male and female form an attachment, commonly in infancy, to which they are never unfaithful. The female produces commonly two fawns at a birth, and these continue in the family till such time as they are able to form one for themselves. The female goes five months and

a half with young. As the roe will not domesticate, when kept in parks, his flesh is insipid; but the flesh of the mountain roe is exquisite food.

The PORCINE-DEER, (Pl. 11.) is about three feet and a half high. Its body is thick and clumsy; its legs are slender and elegant. It is a native of Borneo. A species found in Bengal is called Hog Deer, (Pl. 12.) from the clumsiness of its body.

MUSK ANIMAL.—*Genus 8.* **T**HE different species belonging to this genus, do not all afford musk. Though, like ruminating animals, their mouths are furnished with eight small teeth in the under jaw; in the upper, instead of teeth, they have two long projecting tusks, one on each side. The Thibet Musk (Pl. 13.) is about the size of the roe-buck. It is covered with a smooth, erect, thick, and long fur. It is gentle and timid, inhabits India, frequenting the solitary cliffs and snowy mountains of the Asiatic Alps. Few animals lead the hunter into greater danger. They fly so lightly over tracks of snow, that they scarcely leave the mark of their hoofs, where dogs flounder and are lost. They are for the most part taken in snares, and sometimes shot with cross-bows, so placed in their tracks that a string tied to the trigger, when trode upon, will discharge them. Musk was known and valued in Europe, long before the form or manners of the animal that afforded it were authenticated. It is contained in a bag of an oval form, beneath the navel of the male. It is only in adults that the bag is filled with a clotted, oily, friable matter, of a dark brown colour, which is the true musk. The largest bag does not exceed the size of a hen's egg, and seldom can afford half an ounce of musk.

CAMEL.—*Genus 9.* (Pl. 13.) **I**F the peculiar fitness of animals for the regions which they inhabit, suggested a notion, that they could originate in no other; the history of the camel could not fail to be particularly resorted to. The Camel that inhabits Arabia, and traverses the deserts of Africa, has at

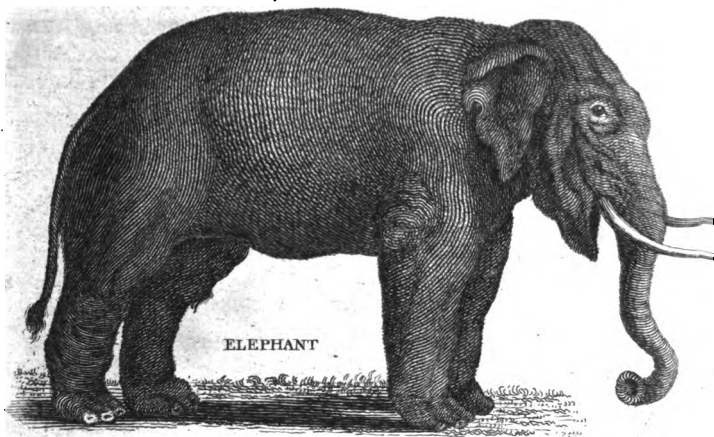
Plate XV.



RHINOCEROS



HIPPOPOTAMUS

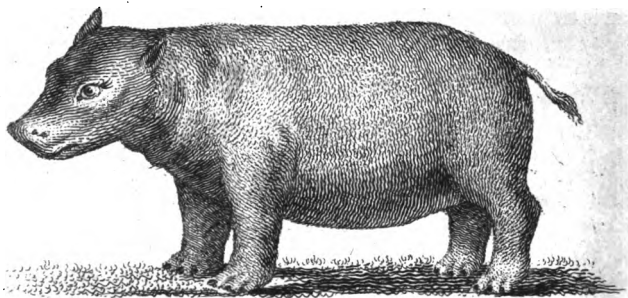


ELEPHANT

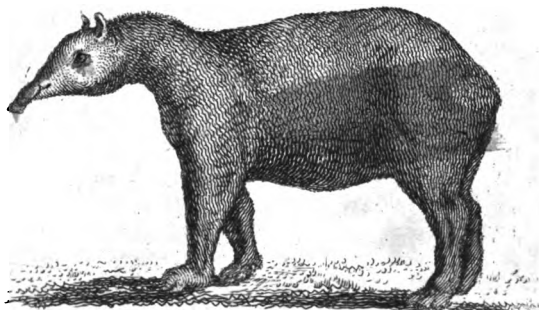
Plate XVI.
BICORN'D RHINOCEROS



CALF of the SEA-COW



TAPIR



least found out the climate best fitted to his constitution, and the human inhabitants are much indebted to him, that he has pursued the destination; had he not offered his services, the deserts of Africa had been unexplored. No other animal could journey for a series of days, where the inhospitable region scarcely presents a shrub or a tuft of grass, and where he meets not a brook, or even a puddle, where he may quench his thirst. But nature has wonderfully accommodated the camel with requisites for this terrible task. The soles of his feet are covered in a cushion-like manner, with a substance tough and spongy, so as neither to slip or crack on the scorching sands, or be torn with splinters and pointed stones. Satisfied with little food, thistles, nettles, cassia, and other prickly vegetables, in addition to a few dates, or a ball of beans and barley, is sufficient nourishment for any journey; but what, above all, enables him to penetrate where no animal, or army, could pursue him, is the curious conformity of his stomach, which contains, besides the four stomachs peculiar to ruminating animals, a fifth, or reservoir for water. This, which is defended from all the juices of the body, will contain a great quantity of water, pure and limpid for many days. With this he macerates his food, and thus in journeys of six or seven hundred leagues, over unwatered tracks, where he can get no supply, he patiently carries a load, weighing generally a thousand, and often twelve hundred pounds. The camel kneels, to receive his burden, and proceeds with the greater spirit, that he is regaled with a song or the sound of an instrument. His cry is loud and dolorous, particularly when he is overloaded, and its frequency is no proof that his tasks are exacted with a merciful hand. Mankind owe other favours to the Camel. The milk of the female is wholesome and nourishing. The flesh is dry but of an agreeable taste, that of the young Camel is delicate and nourishing. The hair is finer than wool, and is wrought into valuable stuffs, and the dung is excellent fuel, particularly valuable in the deserts where no trees or combustible materials are to be found. The varieties of the Camel are, 1st, the Arabian Camel or Dromedary, with one bunch on his back, about 6½ feet high to the back, is common

in Africa and the warmer parts of Asia. 2d, The Bactrian Camel, with two bunches on the back, inhabits the temperate parts of Africa, and is in every other respect of the same disposition and usefulness as the Dromedary.

The LLAMA. This animal inhabits South America, and is the camel of Peru and Chili. Before the arrival of the Spaniards, the Llama and the Pacos were the only animals that assisted the industry of the Indians, the horse, the ox, and the ass being quite unknown. The Llama is very mild and tractable, very swift and sure footed, and, like the camel, has the power of abstaining from drink for a long time. Its neck is long and arched, and its form, excepting that it wants the bunch on the back and seldom exceeds four feet in height, is in every respect like the camel's.

The Pacos is shaped like the Llama but of such inferior size and vigour that the latter will carry one hundred and fifty pounds, when the former is overloaded with more than fifty. Both of these animals are covered with very fine wool, and their flesh is excellent food.

HOG.—*Genus 10. (Pl. 14.)* **T**HE BOAR cannot be ranked as one of the generous or gentle animals; but neither can he be strictly called ferocious; to be dangerous, he must be provoked. Rather fond of carion than of flesh, he does not attack living animals; his principal food is roots and fruits, worms, and putrid substances. With this strange and indiscriminating taste, he has a ravenous appetite, and is fond of wallowing in the mire. Habits of this kind do not promise an agreeable domestic, the filthiness of the Hog is accordingly proverbial. The snout, too, which is well adapted for ploughing up the wild carrot and other roots, renders him troublesome to the gardner and husbandman; on the other hand, his general devouring appetite is convenient, and the prolific nature of the sow has such inducements, that the rearing of swine is almost universal. Indeed, except in the frigid zone, all countries are possessed of this animal either in a wild or tame state; they

are numerous in all the islands of the South Sea, and, being fed with bread-fruit, yams, and eddoes, their flesh is said to be rich and delicious in the highest degree. In England, pork is a principal article among naval stores. But, along with this general demand for pork, there are individuals every where who hold it in detestation. This aversion must, in a great measure, be occasioned by the manners of the animal; and it is, no doubt, the operation of this prejudice which has occasioned the Jews and Mahometans solemnly to forbid the use of it. The eyes of the hog are remarkably small. He has a dull and drowsy look, and his ears, in a domestic state, are pendant. The female goes between four and five months with young, and brings forth frequently, at a litter, twenty pigs.

CAPE VERD HOG. This animal is about five feet long, and two and a half high. The tusks in the upper jaw are large; the eyes are small, situated very high in the forehead; a lobe, or wattle, which, hangs beneath them, prevents the animal from seeing objects which are immediately below. He burrows in the ground, which he is enabled to do, by the form and texture of his snout, almost as readily as the mole. He is a fierce and lively animal, and inhabits the hot parts of Africa.

The **BABYROUSSA** is of a large square form, being nearly the size of the stag. Each jaw is furnished with two remarkable tusks: Those in the under jaw are about eight inches long; those in the upper jaw are twelve. Their sockets are in the outside, and they rise like horns bending to the forehead. It is said, that the animal rests his head by hooking his upper tusks on the branch of a tree. He is found in Java, Celebes, and Bornea.

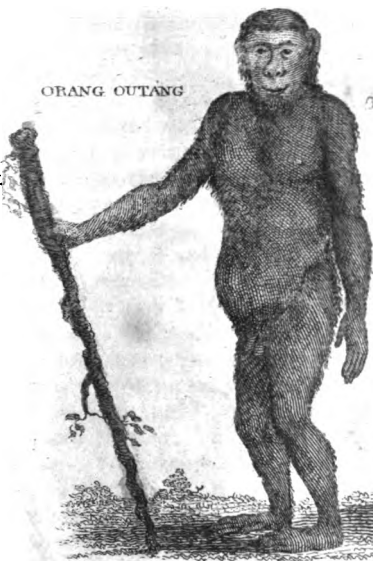
RHINOCEROS.—*Genus 11.* **A LONG** with his great size, and the curious circumstance of carrying on his nose a horn, or horns, (Pl. 15. & 16.) this animal has been always described as being covered with a skin, without hair, impenetrable even to musket balls, and plaited over his body in large folds, as it were arming him all over with har-

ness. Dr Sparrman, however, describes the two-horned Rhinoceros of the Cape, as wholly covered with skin thick and warty, but not wrinkled; which was not only penetrable, but liable to be cut with missile and blunt weapons. On the other hand, Mr Bruce, speaking of the same animal in Abyssinia, recurs to the ancient description; and, with much asperity, treats the Doctor's account as fabulous. The animals may, however, if not a different species, have been varieties occasioned by climate, or by age. In the body, the Rhinoceros is generally as large as the Elephant; but his legs are short. His motion is a trot; and, though his form is unwieldy, he moves with much swiftness, quickening his pace by degrees. The horns upon his nose he can move at pleasure; and, while one is allowed to hang loose, he can dig roots with the other. He lives in forests, and feeds on plants, shrubs, branches, and also the trunks of trees, which he splits into splinters with his horns. His upper lip is flexible, and nearly answers the purposes of a proboscis. He is fond of rolling in mire. This he is said to do to get rid of flies, though it occasions a greater quantity of vermin, which perforates his skin, and exhibits a profusion of pustules over his whole body. The Rhinoceros was known to the ancients, and appeared in the Roman Circus, where he was opposed to the Elephant. It does not appear that he was ever trained to any domestic purpose. He is said to be stubborn and stupid; but, except when provoked, he is not offensive. He is said, however, to have an antipathy at the Elephant; and, in a state of nature, it is, perhaps, expedient that so powerful an animal should have a formidable antagonist. The Rhinoceros has, in modern times, only appeared in Africa; and there the species is uniformly two-horned. The one-horned kind, which is a native of Asia, is seldom met with: It is even doubtful, whether there be such; and whether an accidental loss may not have given name to such a variety.

HIPPOPOTAMUS.—*Genus 12.* **T**HIS animal is the Behemoth of Job; and the sublime description given by the sacred writer shows an accurate knowledge of its manners. Its

Plate XVII.

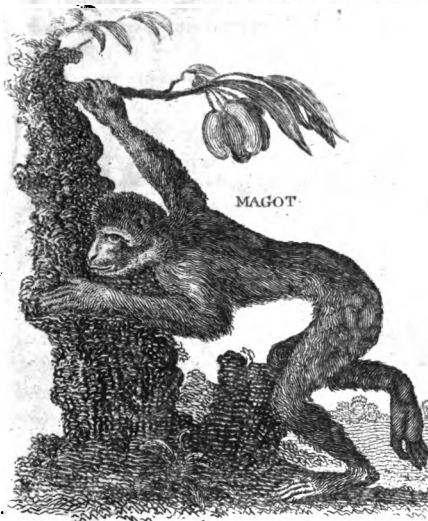
ORANG OUTANG



GIBBON



MAGOT



PIGMY APE



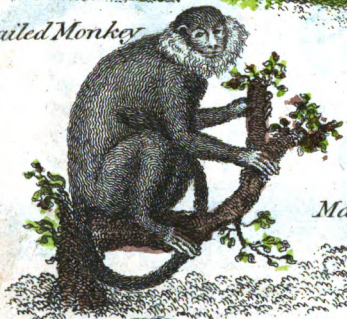
Pl. XVIII.

Large Baboon

Tufted Ape



Long tailed Monkey



Mandrill



Wanderow

Macaque



bulk is only inferior to the Elephant. (Pl. 15. & 16.) A male has been known to measure 17 feet in length, and nearly 7 in height. Its head and mouth are of enormous size. Its skin, very thinly covered with hair, is thick and strong, and of a dusky colour. It is amphibious, and inhabits the eastern coast of Africa. Its food is millet, rice, sugar canes, &c., of which it eats a vast quantity. Being a timid animal, on land it prefers to feed in the night: In the day time, it frequents the rivers, where it lives under the water, or reposes among reeds on the islands, or on the fenny shores that are overshadowed with trees. In shallow rivers, it digs large holes to conceal itself, which it is particularly careful to do in the neighbourhood of frequented places; and, when necessitated to draw in fresh air, it manages to push its nose so short a way above the surface that the place is hardly discernable. In remote situations, however, these animals raise their heads, and great part of their bodies, without reserve: Indeed, they seem to possess circumspection suitable to their circumstances; for Dr Sparrman, who with a large party beset a pit where they were occasionally seen swimming up and down the stream, blowing with their nostrils, and making a grunting or neighing sort of sound, scarcely got a shot at one, after watching two nights and days. The animals were so evidently on their guard, that during the second night they were hardly heard of. The party then determined to shoot them, whenever they presented their noses for fresh air; but their efforts, for other two days, were equally unsuccessful. At last, however, they succeeded in seizing the calf of a Hippopotamus, who appeared to be flitting from one pit to another. This calf was supposed to be scarcely three weeks old, and was already three and a half feet long, and two feet high. It was but an ill substitute for an enormous animal that had given proofs of being able to bite a man asunder; but it was considered as no mean recompence for the toil and danger of the party. While it was carried in triumph to their waggons, it made a noise more shrill and harsh than a hog that is going to be killed; and it shewed a considerable degree of strength in endeavouring to break the ropes that bound it; however, when it was loose, it

ceased to cry; and when the Hottentots had passed their hands several times over its nose, to accustom it to their effluvia, it directly began to take to them. From this circumstance, and from what has been mentioned by naturalists of the mildness and gentleness of the Hippopotamus, it is obvious that he might be tamed; but to hope that he might be rendered serviceable, would perhaps be too sanguine. In no country have mankind overlooked such animals as could be induced to assist their labour; and it is not likely that an animal, known from the earliest times, could possess tractable qualities which were never turned to account; otherwise, from his amphibious habits, he might have made an useful exhibition in dragging rafts along shores, or swimming with them over inlets or the sea. The flesh is most excellent food, and the teeth are whiter and harder than those of the elephant, and are what dentists prefer for making artificial human teeth.

TAPIR.—*Genus* 14. (Pl. 15.) **T**HIS is an American animal, and the largest of that continent, though it does not exceed a heifer of an year old. Being an amphibious animal, he has been supposed a species of Hippopotamus; but though he fills the place of the larger animals, in a region where nature has new-modelled, in miniature, those enormous forms that astonish in the Elephant, the Hippopotamus, and the Rhinoceros, the Tapir is a different animal from any of them. Though his snout extends considerably beyond his lower jaw, like that of the Rhinoceros, yet, being destitute of horns, he is sufficiently separated. This proboscis-like nose, which is very unlike the long trunk of the Elephant, does not at all affiliate him to that animal, while by it he is sufficiently distinguished from the blunt-nosed Hippopotamus, though his habits and manners have a striking resemblance. He lives in the marshy grounds contiguous to rivers and lakes. He is a mild animal, and so timid that on every alarm he plunges into the water, where he is capable of remaining for a long time. He feeds in the night, and lives upon plants and roots. He runs with considerable speed, but he swims faster than he runs. The Tapir

inhabits the whole of South America. His skin is of a close and strong texture: His flesh is said to be insipid, and coarse.

ELEPHANT.—*Genus* 14. (Pl. 15.) **T**O arrive at the ELEPHANT, in a description of animals, is like approaching Etna amidst the surrounding mountains. The Elephant is not only the largest, but the most intelligent of quadrupeds. Capable of affection, he forms an entire attachment to the person who feeds and takes care of him. He understands his signs, and the sound of his voice; and, whether they express passion, command, or satisfaction, is solicitous to anticipate his desires. He looks towards him with a mild and inquisitive eye. He attentively listens to his orders, and executes them with assiduity and precision. With such dispositions, the Elephant is amazingly supplied with requisites to execute his intentions. His trunk, which is formed of a multitude of cartilagenous rings, is moveable in all directions. It terminates in a cup-like cavity, at the bottom of which is situated the apertures for respiration and smelling; and, on the superior edge of the cavity, is fixed a hook which performs all the operations of a finger, and finishes this wonderful instrument, at once the strongest and most flexible arm. With the sense of smelling as it were in his hand, he culls, with delicacy of choice, the most odoriferous flowers, and picks from the ground the smallest herb or seed. He robs the orange, the cocoa, the banana, and sago trees of their leaves and fruit; and, when the wood is tender, he devours the branches, the trunk, and the roots, taking the assistance of his tusks, where his trunk is ineffectual, to splinter the stem, or to tear up the roots. His mouth, from the stiffness and shortness of his neck, cannot reach the ground but is supplied by the trunk with whatever he eats or drinks. When inclined to drink, he thrusts his trunk into water, and draws in his breath till it be full; here he can retain it, without impeding respiration, till he discharges the contents by turning up the end of his trunk into his mouth, or by throwing it away, which he can do to a great distance. The general figure of the Elephant is clumsy in a great

degree ; his neck and limbs being almost immoveable, he turns with such difficulty that hunters can escape from him by turning round him. His pace, however, though grave, is by no means slow ; and his strength is enormous. He works machines, and carries burdens, that six horses cannot move. A push of his body will overturn a wall ; and he can carry on his back an armed tower filled with armed warriors. His courage and prudence are equal to his strength ; and his presence, before the use of gunpowder, was sufficient to decide the fate of armies. Elephants do not propagate in a domestic state ; all tame Elephants, therefore, have been originally wild. In Africa, they are commonly taken in pits, and killed ; but in the east, where they are taken to be domesticated, the wild elephant is decoyed by a tamed female into inclosures, erected on purpose, where he is entangled with ropes ; and being introduced to two or three tamed Elephants, that he may have an example of obedience, what by caresses, and what by torture, he is in a few days subdued and reconciled to his condition.

Thus tamed, no animal is so tractable and intelligent. His knowledge and judgment is such, that on many occasions he appears to reason. When about to be ridden, he accommodates his behaviour to the person he serves. He bends down to his master, and with his trunk assists him to mount on his back. If destined to the immediate service of a prince, he seems to recognize his good fortune, and maintains a gravity of demeanour corresponding to the dignity of his office. If, on the contrary, less honourable labours are assigned him, he turns melancholy, frets, and appears humbled and depressed. Many anecdotes might be collected, to illustrate the fidelity, gratitude, and sagacity of this extraordinary animal ; a few shall suffice. In India, they were formerly employed in launching ships : One was required to force a large vessel into the water, which turned out to be above his strength ; his master, calling to the keeper with a sarcastic tone, bade him take away this lazy beast, and bring another ; the poor animal was so stung with the reproof, that he repeated his efforts, fractured his skull, and died on the spot. The Elephant, both in his wild

and tame state, is mild and gentle, but sometimes seized with periodical fits of madness, when he becomes so formidable that it is often expedient to kill him; yet, amidst the rage by which he is actuated on this occasion, he sometimes recollects himself. At Adsmuir, an Elephant, who was seized with madness, broke his fetters, and, running through the market-place, put the crowd to flight: Among those who fled, an herb-woman, who was in the practice of giving him a mouthful of greens whenever he used to pass that way, in her hurry to get along, had left her child behind her; the animal, recollecting the stall of his benefactress, took up the child gently with his trunk, and laid it in a place of safety. Another had killed his cornac, or governor; the wife, who witnessed the catastrophe, seized his two children, and, flinging them towards the Elephant, exclaimed, "You have destroyed their father, you may now put an end to their lives and mine!" He instantly stopped, and looked mournful; and, taking the elder child on his trunk, he placed him on his neck, adopted him for his cornac, and never allowed another to mount him. At Delhi, an Elephant, passing by a taylor's shop, put in his trunk, when one of the men, with his needle, pricked the end of it. The animal passed on to the nearest puddle; and, returning with his trunk full of water, squirted its contents amidst those who had offended him, and spoiled their work. An Elephant at Versailles did nearly the same thing to a painter, who wished to draw him in the action of elevating his trunk: His boy was employed to throw fruit into his mouth to keep him in the attitude; but, as he often deceived him with an appearance only of throwing, he grew resentful; and, instead of punishing the lad, he turned his eye to the master, seemingly sensible of his intention, drew up a quantity of water into his trunk, discharged it on the painter's drawing, and completely spoiled it. The Elephant, in loading a boat on a river, so carefully disposes of all the articles, that they be neither crushed nor wet, that the arrangement never needs to be altered. In raising wheeled carriages, heavily loaded up a declivity, he pushes the carriage forward with his front, supports it with his knee, and renews his efforts. And if.

he drags a beam of wood along the ground, he removes obstacles to make it run smoothly and easily.

The largest Elephants of India are fourteen feet high: Those of Senegal, and the west coast of Africa, exceed not ten or eleven feet. As they swim with ease, they are of great use in crossing rivers, which they do with vast burdens of baggage and men. Their tusks, so well known as ivory, grow so large and heavy, that, when the animal sleeps, he is obliged to have them supported. Tusks have been frequently found nine feet long, and one hundred and twenty pounds in weight.

DIVISION II.

DIGITATED QUADRUPEDS.

APE.—*Genus 15.* **U**NDER this general appellation are included Apes, properly so called, without tails; Baboons with short tails; and Monkeys with tails as long as their bodies. In all of them, there is a disgusting resemblance to the human form; particularly in the use of the hand, and the grimace of the face. If this resemblance be mortifying to one who is fond of his appearance, or frivolous in his pleasures, it is only curious, if it be not consoling, to him who performs the relative duties of an intellectual being. The Ape is farther removed from man than many other animals. His action is the impulse of the moment. He improves not with experience. He has no docility. His artifice is mischief; his frolic is madness; and he is filthy and thievish in his manners.

The **ORANG-OUTANG** (Pl. 17.) has a nearer resemblance to man than either the baboon or the monkey. His disposition is milder; his face is flat; and, having buttocks, and calfs on his legs, he is formed for walking upright. He principally differs from man by the flatness of his nose, the closeness of his eyes, the largeness of his ears, and the shortness of his front. His thighs are shorter, his arms longer; the palm of his hands

longer, and his feet rather resemble hands. With these trifling differences in structure, his habitudes are in many respects similar. That which the Count Buffon saw he thus describes: "His air was melancholy, his gait grave; he had neither the maliciousness of the baboon, nor the extravagance of the monkey. Signs and words were alone sufficient to make him act, when the baboon required a cudgel, and the monkey a whip. I have seen him sit down at table, unfold his towel, wipe his lips, use a spoon, or a fork, to carry his victuals to his mouth, pour his liquor into his glass, and make it touch that of the person who drinks along with him. When invited to take tea, he brought a cup and saucer, placed them on the table, put in the sugar, poured out the tea, and allowed it to cool before he drank it. He eat almost every thing, but preferred ripe and dried fruits to all other kinds of fruit." This animal was about two feet and a half high, but in a wild state they are said to be five and six feet high, and are remarkably strong. They assemble in small herds; they often attack and kill the negroes. When they fall in with elephants, they so beat them with their fists and clubs that they run roaring away from them. Woods and mountains of difficult access are their haunts. They are found in Africa, and in the larger islands of the East Indies.

PIGMY APE, (Pl. 17.) The Pigmyes were celebrated among the ancients as a dwarfish race of mankind, who waged war with cranes, and were extirpated by their victorious enemies. They live on herbs, corn, and fruit. They go in troops, and do much mischief in fields and orchards. Upon these occasions, one is appointed sentinel; and, while there is no danger, with a call he encourages the troop to proceed: but, when alarmed, he screams with a loud voice, and the rest, leaping from trees, flee to the mountains. They inhabit Lesser Asia, and the northern parts of Africa. They are caught with inebriating liquors, which are placed for them in the caverns they frequent: these they drink freely, and soon fall asleep, when they are easily taken. The Pigmy has no tail; has a flattish face, ears like a man, flat nails; is of an olive brown colour, and sits upright.

GIBBON, or LONG-ARMED APE, (Pl. 17.) Has a flat face, of a tawny colour; large eyes, but deep sunk; naked ears; a circle of hoary hair surrounds the face: He stands naturally erect; and, in this attitude, his arms reach the ground. He is about three feet in height. The Duke of Buccleugh had one which was wholly black. He seemed to be of a malicious and violent disposition. His motions were sudden; he sprung with agility, and was fond of swinging on his arms.

MAGOT, or BARBARY APE, (Pl. 17.) He walks on two feet, but more willingly on four; his aspect is ugly, and his manners gross. His form is less like the human than any of the foregoing. His face is long, and not unlike that of a dog. His nails are flat; his buttocks bare; the colour of his body dirty greenish brown; his belly dull yellow. He grows in length above four feet; and inhabits Africa and the East Indies.

GREAT BABOON, (Pl. 18.) If brilliant colouring could alone constitute a beautiful animal, the Baboon, described by the translator of Buffon, would, perhaps, be the most beautiful of quadrupeds. The compiler drew, described, and well remembers that animal. The colours on the head and hips were as vivid as those on a pullet, but never harsh. Every colour was so softened and blended with a neighbouring colour, that they produced the most beautiful intermediate tints. The ribbed chucks were sky-blue. A vermilion line began a little above the eyes, and, running down between them, and on each side of the nose, spread over the snout. The inside of the ears was blue, which, softening from purple, terminated in vermilion. The beard at the roots was of the same dark colour with that on the upper part of the body; but it soon changed into a deep orange, and ended in yellow. The hair on the belly was of an ash colour, and speckled like the sides of a partridge. The rump was vermilion, and the beautiful colours on the hips were only gradations from red to blue; but this gorgeous dress could not disguise a savage ferocity of aspect, which nobody could look on without apprehension. He was perpetually grinding his teeth, and fret-

ting with rage ; and he seemed eager to seize every one who came within reach of his chain. Baboons, though mischievous and fierce, are not carnivorous. They feed on fruits and roots. They are dexterous in robbing gardens ; for which purpose they assemble in troops, and take their stations so that they throw the fruit from hand to hand, and over the walls, from the place of pillage to that of their rendezvous. The Baboon has cheek pouches, and is about five feet in height.

MANDRILL OR RIBBED NOSE BABOON, (Pl. 18.) is more peaceable, and less ferocious than the former. He frequently goes on two legs, and is five feet high.

WANDEROW, (Pl. 18.) from Ceylon, is covered with black and brown hairs, has a bushy head, and large beard. Wanderows when taken young are easily tamed ; and otherwise, when they are subject to strong passions, must be kept in iron cages. In the woods, they are very wild and ferocious. They seldom walk erect.

MONKEY. The Macaque (Pl. 18.) is a native of Congo, and very destructive to gardens. Being delicate in its choice of food, it examines every stalk of millet, throws away what does not please, and pulls more, destroying vast quantities which it does not use. These animals are never more than half tamed and always require a chain. When succulent plants fail, they eat insects and even repair to the sea-coast and catch crabs, which they do by presenting their tail to the pincers of the crab, whenever the pincers close, they carry it quickly off and eat it at their leisure. They are taken by means of a cocoa nut with a small hole made in it. To get at the kernel they squeeze their paw into the hole, and before they can disentangle themselves, they are seized on. Pennant considers the Malbrouck of Buffon only a variety of this species.

CHINESE BONNET, (Pl. 19.) The hair on the crown of the head is long, lies flat, and is parted like that of a man. The colour is pale brown. They inhabit, or

rather infest Ceylon. In the garden and field, they are equally mischievous as the Macaque. When driven from one end of a field, they will enter at the other, and carry off as much as their cheek pouches and arms will hold, they then hop away on their hind legs with their burden; but if pursued, they drop whatever they carry in their arms, that they may the speedier escape with what they may have in their mouths.

MONA or varied MONKEY, (Pl. 19.) has long hair on the sides of his face and throat. The upper part of the body is dusky and red, the belly whitish. He is about a foot and half long, the tail is two feet. He is susceptible of education, but of little attachment.

CALLITRIX or green MONKEY, (Pl. 19.). Has a small head, long muzzle, and black face and ears. His body is of a vivid green, mixed with a little yellow. His tail is longer than his body.

American monkeys differ from those on the old continent, having neither cheek pouches nor naked buttocks. They are likewise distinguished among themselves into what Buffon terms sapajous and sagoins. The sapajous have prehensile tails, which they can use as fingers to lay hold of any thing. The under part of the tail at the extremities is generally deprived of hair and covered with a smooth skin, this portion they can fold, extend, curl up, or unfold at pleasure, and by this they can suspend themselves from the branches of trees. The tails of the sagoins are longer, are covered with hair, and have no power of suspending them, or of answering any purpose of a hand.

COAITA, (Pl. 19.) is among the largest of the sapajous. Animals of this kind are mostly black, except on the under part of the body, which is whitish. They are about a foot and a half long, the tail two feet. Their limbs are so remarkably long and slender, that they were called spider monkies. They have a very waggish chatter, make a variety of grima-

Plate XIX.

Malbrouk



Chinese Bonnet



Mona



Cullitree



Coaita

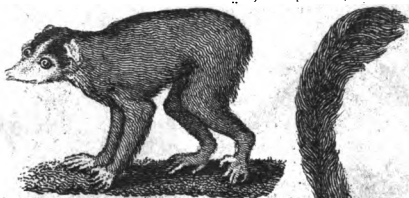


Striated Monkey



Plate XX

LORI



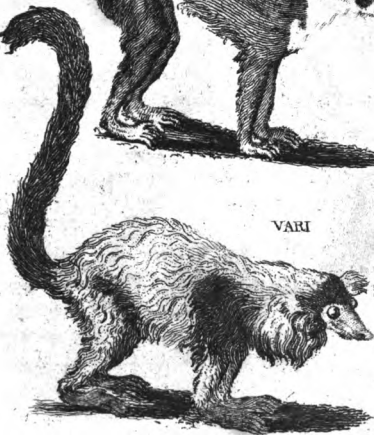
MONGOUS



MAUCAICO



VARI



ces, and skip from bough to bough with the young ones hanging at the old ones back. To pass from top to top of high trees, whose branches are too far asunder for their leaping, they will sometimes hang down by one another's tails in a chain, and swinging in that manner, the lowermost catches hold of a bough of the other tree and draws up the rest of them.

STRIATED MONKEY, (Pl. 19.) is among the smallest of sagouins. It exceeds not half a foot in length, tail about a foot, does not weigh above six ounces. The face is flesh colour, two tufts of long white hair almost conceal the ears. Striated monkeys have produced young in Portugal where the climate is favourable to them. The young have hardly any hair on their bodies, and adhere firmly to their mother like the opossum. When they become larger, they fix on her back or shoulders, but when she is fatigued, she rubs them off against a wall, and the father instantly allows them to mount on him.

MAUCAUCO. *Genus 16.* THE TAILLESS MAUCAUCO, (Pl. 20.) is covered with a short ash-coloured reddish fur, remarkably soft and silky. It is about sixteen inches long. It inhabits the woods of Ceylon and Bengal, and lives on fruits. In a tame state, it is fond of eggs, and would greedily devour small birds. It is quick of hearing, but with the inactivity of the sloth, it creeps slowly along the ground, is very tenacious of its hold, and makes a plaintive noise.

WOOLLY MAUCAUCO, (Pl. 20.) inhabits Madagascar, and is about the size of a cat. The whole upper part of the body is covered with long, soft, and thick fur, a little curled or waved, of a deep brownish ash-colour. Its tail is very long and covered with hair of the same sort and colour. Buffon kept one for several years. His tongue was rough like that of a cat, when permitted, he would lick a person's hand till it was in-

flamed, and often finish with a severe bite. Whenever he could escape, he went into the neighbouring shops in quest of fruits, sugar, and sweetmeats, opened the boxes that contained them, and helped himself. His movements were extremely brisk, and sometimes petulant. He dreaded cold and moisture: in cold weather he never left the fire, and would stand on end to warm him. He often slept in the day, but the least noise awakened him.

RING-TAILED MAUCAUCO, (Pl. 20.) Its face is white, except a circle round the eye and point of the nose, which are black. The back and sides a reddish ash-colour, and its belly white; all its hair is very soft, close, and fine, and erect like the pile of velvet; its tail is twice the length of its body, and is marked with regular rings of black and white. The manners of this beautiful animal are gentle, but the rapidity of his movements renders him incommodious in a domestic state. It is for this reason he is generally chained, for though as active and vivacious as the monkey, he has none of his malicious dispositions. He tames to such a degree, as to go out and return without any danger of running off. They are found in Madagascar, and associate to the amount of 30 or 40 in a troop.

RUFFED MAUCAUCO (Pl. 20.) has long hair standing from the sides of the head. The whole animal is black; or white, spotted with black. It is very fierce in a wild state, and makes so violent a noise in the woods, that the cries of two may be easily taken for the noise of a hundred. If taken young and tamed it is very gentle and good natured.

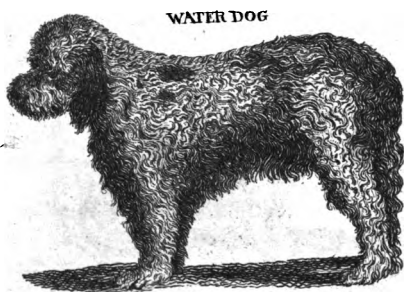
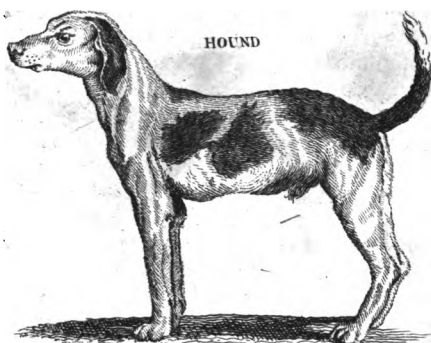
DIV. II. SECT. II. *With Canine Teeth.*

DOG. Genus 17. **T**HE FAITHFUL DOG, properly so called, approaches man with offers of the most active and assiduous service, and

Plate XXI.



Plate XXII.



brings with him an instinct that participates of his sentiments, and also emulates reason. His activity and courage are sufficient for his own protection; all that he asks of man for his understanding, his freedom, his labour, and his life, is to be honoured with his countenance, and to accept of the title of his master. For this there is no hardship that he will not endure, he travels with him during the day, and watches over him at night; he protects his property from the thief, and his flocks from rapacious animals. He exerts every faculty for his interest. He stretches his ears to watch the sound that would insult him. By his scent he discovers the game that would gratify him, and his eyes are ever fixed on the eyes of his master, to discover his intentions and wishes. A single glance is sufficient for his information; if he be doubtful, he interrogates and supplicates for his orders with anxiety, and if he mistakes, he throws himself on the ground and submits to punishment. His complaints under the rod are not followed by repentment. The completion of chastisement is acknowledged by caresses, and he licks the hand of his chastiser. Possessed of such requisites to attract regard and conciliate affection, how inhuman is he who unmercifully treats such a friend and servant. The dog, like every domestic animal, is subject to many varieties, as management or climate operate, and has produced a number of distinct families. These perfectly preserve the general character of faithfulness. Each of them are peculiarised by some predominating excellency; while one tribe obeys the shepherd, another guards the team; while one traverses, another courses the field; while one is suited to subterraneous employment, another plunges into the water; one kind is formed for controlling the bull; and, shall we add of this useful animal, that it condescends to guard the lady's lap, and is often cherished in her bosom. Buffon has exhibited the genealogy of dogs in the form of a tree, of which the shepherd's dog is the root. The branches that shoot to the north, produce dogs of an ugly and savage aspect; those that bend to the south, produce, in civilised and temperate countries, the large and intelligent breeds; but in warm countries, the offspring degenerates into a small

size, and acquires a silky covering. The different races thus formed, are again transported and intermingled, and create an endless variety of mongrels. But, however the families of the dog are propagated, and however his dispositions vary from the wolf or the fox, there is such a resemblance in their conformities of body, that he has often been supposed to originate from one or other of these animals. Buffon tried several experiments to procure a breed from the dog and the wolf, or the dog and the fox, but was unsuccessful. The experiment, however, has succeeded with others. In one case, where the wolf was the father, the offspring was said to be very tame during the day, but that at night it exhibited symptoms of ferocity. It howled but did not bark. When it came into fields among sheep, it feigned lameness, but if no person was present it attacked them. The natives of North America, before its discovery by the English, possessed a substitute for the dog, which appeared to be derived from the wolf. They could not bark, but betrayed a savage extraction by a howl. They wanted the sagacity of the true dog, and were detested by European dogs, who worried them on all occasions. The Kamschatka dogs, too, appear to be of wolfish descent; they want the affectionate fidelity of the European kind, for if their master be thrown out of his sledge, they leave him to follow, and never stop till the sledge is overturned, or fixed by some impediment. These circumstances have rendered it probable, that the wolf has at least furnished the dog with its ferocity. Pennant says, that the original of the dog is, with great reason, supposed to be the jackal; and, that, from their offspring casually crossed with the wolf, the fox, and even the hyæna, have arisen the numberless forms and sizes of the canine race.

The **SHEPHERD'S DOG** becomes, without discipline, almost instantly the guardian of the flock, and reigns over it with a sway, that is at once rigorous and temperate. He directs them with precision to the field or to the fold; he corrects the stragglers without injuring them; his voice is better heard than that of his master, and with vigilance and assiduity he singly effects what

would require the labour of many shepherds. The race in England is small and weak. In France and the Alps, it is large and strong, and the scars on their faces frequently evince what terrible conflicts are necessary to defend their charge from the ravenous attacks of the wolf. The *Siberian Dog*, and the *Pomeranian* or *Wolf Dog* are varieties of the shepherd's dog.

The HOUND is remarkable for his strength and swiftness, and the acuteness of his scent; he shares with his master in the pleasures and fatigues of the chase of the fox or the deer; he traverses the field to discover the rout of his prey, and announces his success to his companions; he follows through all the windings of the labyrinth, and unravels the false routes that were intended to deceive him. Instead of abandoning the object of his pursuit for a different animal, he redoubles his ardour, he overtakes, attacks, slays, and extinguishes his thirst and rage in the blood of the victim. To the bloodhound with long pendulous ears, is allied the *Harrier*, so called from his use in hunting the hare, and which is only a weaker variety; the *Dalmatian* spotted dog the *turnspit* and the *water dogs* great and small.

The SPANIEL is another dog of scent, and follows the fowler to the heath, where he discovers the game; as he knows that he cannot seize the object of his pursuit which at once rises in the air, and is out of his reach, he checks his ardour and stands motionless over the prey, till his master approaches and tears it from the region to which it flies for safety. Dogs of this kind vary in size from the setting-dog to the little lap-dogs, and include *King Charles'*, which is black; the *Pyram*, marked on the legs with red, with a spot of the same above each eye; and the *Shock* or *Maltese* dog with very soft, silky, long hair.

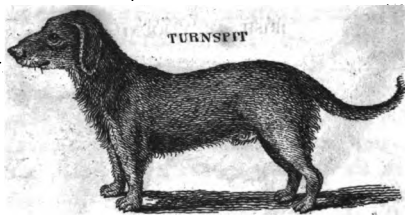
The IRISH GREYHOUND stands at the head of a race with short pendant ears, and long legs and bodies. It was once very common in Ireland, and trained for the chase of the wolf, with which that country was infested till the end of the 17th century; since that time,

their numbers have decreased, and they are now very scarce. It is a dog of very great size and strength, and hunts principally by the eye. To him is allied the common *Greyhound*, so remarkable for swiftness and beauty, that among the early forest laws of England, it appears that nobody under the condition of a gentleman should presume to keep a greyhound. It pursues by the eye, and is reared principally for hunting the hare. The *Oriental Greyhound* is very tall and slender, and covered with long hair. The *Italian Greyhound* is very small and smooth. An extraordinary variety of this race is the *Danish dog*, of a stronger make than the greyhound, and the largest of all dogs. Buffon says, that one of these dogs which he saw when sitting, was about five feet high. Pennant thinks it probable, that of this kind were the dogs of Epirus and Albania. Alexander the Great had a present of one from the King of Albania, which disdained to attack the boars and deer that were turned out before him; when the high spirited prince, provoked at the indolence of a creature so singularly large, ordered him to be put to death. He afterwards received another, with this message from the king, that if this were slain, he should have none left; but, that he disdained small beasts, and should only be tried on a lion or an elephant. Alexander did not delay, and soon saw a lion overpowered. He afterwards ordered an elephant to be presented to him, and was transported with the spectacle. The whole hairs of his body bristled up, the dog opened upon him with a howl like a peal of thunder, and instantly began the attack; he rose and fastened on him, now on this side, now on that, artfully attacking or retreating, till, by continually wheeling round, he at last brought the enormous animal to the ground, which shook with the weight of the fall. The *Mastiff* is another variety of this renowned race. Of a noble countenance, he is thick and so very strongly made, that three mastiffs have overpowered a lion. He is the most valuable of household dogs, and the natural protector of the barn and the storehouse; he is jealous of strangers, he hates beggars, he is a terror and uncorruptible enemy to the thief. The British mastiff is a favourite race, and has a very loud bark.

Plate XXIII.



Plate XXIV.



TURNSPIT



SHOCK



SPANIEL



BULL DOG



MASTIFF

The **BULL-DOG**, among those with short pendant ears, short bodies and noses, and generally long legs, is more fierce and cruel than other tame dogs. He is remarkably tenacious of his bite, and often bites before he barks. Of this kind, which is peculiar to England, many were, in ancient times, sent to the amphitheatre at Rome; and, in their combats with the bull, gave additional interest to the savage entertainment. Since the custom of bull-baiting has declined in England, the breed has become scarce. The *Pug-dogs* are a-kin to the bull dog, which they very much resemble, but are small and very inoffensive and familiar.

Dogs are found in great numbers wild, or rather without masters, in Congo, Lower Ethiopia, and towards the Cape of Good Hope. Some of them are red, and in shape resemble the greyhound; others of the size of a large fox-hound, are of various colours, and have erect ears. They hunt in packs, and attack lions, tigers, and elephants, but are often killed by them. They hunt down and destroy great numbers of antelopes, and frequently commit ravages among the sheep of the Hottentots. A pack of these dogs is, however, a pleasing sight to the traveller, who infers, that they have conquered the wild beasts, and secured the safety of his journey. In South America, where dogs were first introduced by Europeans, vast multitudes of their offspring run wild, but when they are found young, they instantly attach themselves to mankind, and never afterwards join the wild dogs or desert their master.

The **WOLF** inhabits Europe, Asia, Africa, and America, but has long been extirpated from Great Britain. His head is long, his nose pointed, his ears erect and sharp, his tail bushy, his legs long, and the colour of his body pale brown. His eyes sparkle with fury and wildness. He is larger than the dog, fierce and cruel, but suspicious and cowardly; he flies from man and seldom ventures out of the woods, but when urged by hunger. He will then, not only attack men, horses, dogs, and cattle of all kinds, but even tear open the grave. His sense of smelling is so acute, that he scents carrion at the distance of a league. Wolves have been

known to follow armies and devour the dead ; such of them as have tasted human flesh, ever afterwards attack men, prefer the shepherd to his flock, devour women, and carry off their children. The neck and jaws of the wolf are so strong, that he carries a sheep in his mouth, and outruns the shepherd. His bite is terrible, and always cruel in proportion to the smallness of the resistance, for when an animal can defend itself, he is cautious and circumspect. In Persia, wolves, when young, are learned to dance, or rather to perform a kind of wrestling with a number of men ; those well educated sold at 500 French crowns. The wolves of North America are small, and when reclaimed, are the dogs of the natives. These facts prove, that time and restraint may operate changes on the temper of the wolf, though Buffon's experiments were unsuccessful. He brought up several wolves, when young they were docile and even caressing, but at the age of 18 months, or two years, it was necessary to chain them. One brought up in a court along with fowls, had never attacked any of them, but at the age of 18 months, as a first essay, he killed the whole in one night. Another having broken his chain, run off, after killing a dog with whom he had lived in great familiarity. Good blood-hounds are necessary to hunt the wolf, and they need to be coaxed and encouraged in the pursuit ; for all dogs have an aversion, and shudder at the first sight of him. If he falls into a snare, he is so terrified that he may be killed or taken alive without resistance. If several wolves are seen together, it indicates an attack on some large animal, for they are solitary and hate society ; even the males and females are seldom together. When the female is about to bring forth, she prepares, in the recesses of the forest, a commodious bed of moss for her young. The young are born blind.

The Fox (Pl. 25.) has a sharp nose, erect ears, his body straw-coloured brown ; his hazel eyes are remarkably significant of love, fear, and hatred ; he barks, yelps, and utters a mournful cry ; he varies the tones of his voice as he is affected, he has an accent peculiar to the chace, to desire, to complaint, and to sorrow ;

he is playful, and greatly admires his bushy tail, but, the most crafty of animals, he is an accomplished thief; he takes his abode on the skirts of a wood in the neighbourhood of cottages, he listens to the crowing of cocks and the cries of the poultry; he scents them at a distance, he chooses his time with judgment, he conceals his road as well as his design; he slips forward with caution, sometimes trailing his body, and seldom makes a fruitless expedition. If he can leap the wall, or creep underneath, he ravages the court-yard, puts all to death, and then retires softly with his prey, which he hides, either under the herbage, or carries off to his kennel; he speedily returns for another burden, and disposes of it in the same way, but in a different place. Thus he proceeds, till the sun or some movement in the family, advertise him, that it is time to suspend his operations. This crafty game he practises with the catchers of thrushes, woodcocks, &c. He visits the nets and and bird-lime very early in the morning, carries off successively the birds which are entangled, and hides them in different places, where they will sometimes ly for two or three days, but where he knows perfectly to find them. He seizes on rabbits, hares, and partridges; when these fail him, he preys on rats, mice, serpents, lizards, and toads. He is fond of honey, and attacks the wild bees, wasps, and hornets; a thousand stings oblige him frequently to retire, and crush them by rolling on the ground, but he returns so often to the charge, that he at length succeeds, uncovers the hive, and devours both the honey and the wax. The fox lives under ground, and generally in a badger's hole, which he enlarges with several chambers. He is hunted with terriers, who go into his hole, while the hunters dig down the earth, and either kill or seize him alive; or he is pursued with hounds. When hunted in this manner, his first attempt is to recover his hole; if he finds this stopt, which is generally the first care of the huntsmen to have done, he then flies the country, and tries the swiftness and strength of his pursuers. The fox produces but once a-year. The young are born blind, grow 18 months or two years, and live 13 or 14 years.

ARCTIC FOX, (Pl. 25.) These animals are found in Greenland, Iceland, Spitzbergen, Nova Zembla, and Lapland. But, as they cannot burrow in these countries, by reason of the frost, two or three pair of them, as a family, live in the clefts of the rocks. The Russians call them dogs, but they have all the cunning of the common fox, and prey on geese, ducks, and other water-fowl, before they can fly.

The **JACKAL** inhabits all the hot and temperate parts of Asia, and most parts of Africa: Is covered with stiff hair, three inches long on the back, of a dirty or tawney colour, on the belly it is shorter and of a yellowish white. It is about two feet and a half from the nose to the tail, and the tail which is thickest in the middle, and tapers to a point, is about eleven inches long. When taken young, the Jackal grows instantly tame, attaches himself to mankind, wags his tail, loves to be stroaked, distinguishes his master, comes when called by the name that has been given him, laps his drink, and has otherwise so much the nature of the dog, that there is reason to suppose, that he is at least the chief stock from whence the various races of that domestic animal has sprung. Jackals go in packs of forty, fifty, or even two hundred, and hunt like hounds, in full cry, from evening to morning. Their howlings are dreadful, and it is natural to suppose, will not only alarm the timid, but arouse the rapacious animals. On these occasions, the lion must come in for a large share of the animals roused, and hence the Jackal may be said to be the lion's provider, a name by which he is vulgarly distinguished. They destroy flocks and poultry, and even children if left unprotected. In default of living prey, they will eat carrion, and even disinter the dead.

HYÆNA. Genus 18. **THE HYÆNA** is larger than the dog, covered with coarse hair, ash-coloured and striped with black; he has high shoulders and an upright mane; he inhabits Asiatic Turkey, Persia, and Africa. He preys by night on herds and flocks, yet for want of this food, will eat the

Plate XXV.

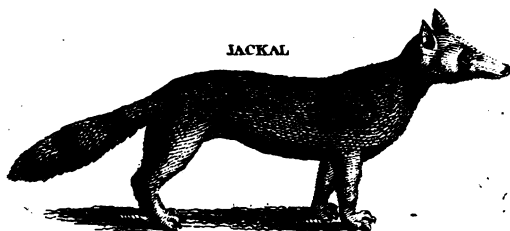
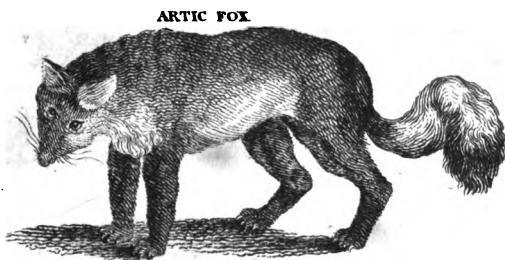
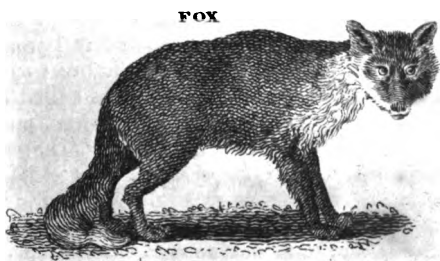
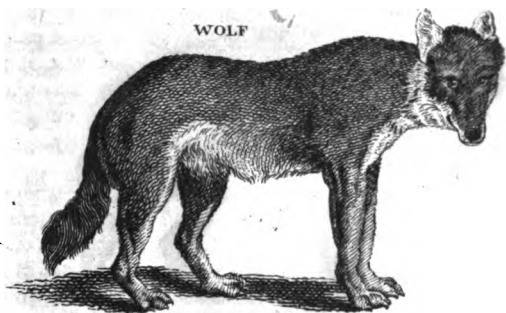
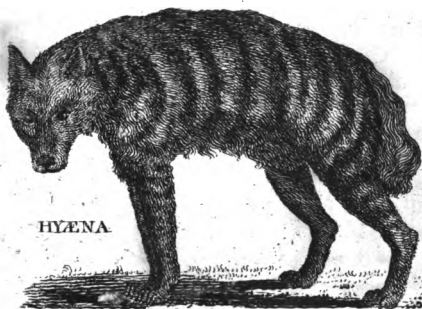
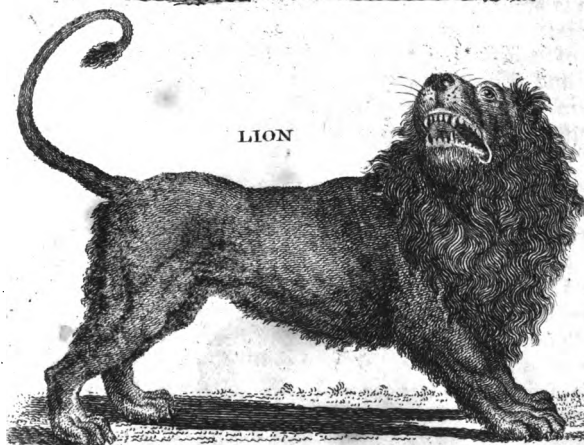


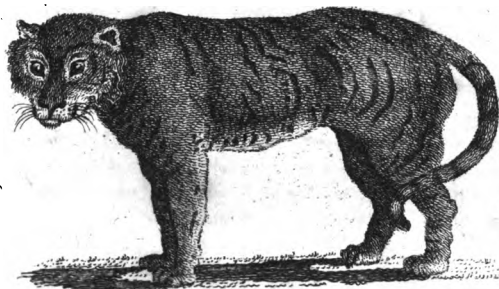
Plate XXVI.



HYENA



LION



TIGER

roots of plants, and the tender shoots of the palm. Like the jackal, he disinters the dead, and greedily devours the putrid contents of the grave. For this reason, in countries infested by these animals, graves are made very deep. The Hyæna is solitary and unsocial. He is cruel and fierce, and of a most malevolent aspect, and possesses such obstinate courage, that he will face animals much stronger than himself; his voice is hoarse and growling, and his howl betrays him when he hunts. To atone for this injury which he does to himself, he is possessed of the peculiar gift of imitating, in a degree, the cries of other animals, and thus calves, foals, and lambs, are beguiled into the jaws of this arch-deceiver. The Hyæna, in our exhibitions, has a savage and ferocious appearance, that must, in a great measure, be imputed to confinement and ill usage, for he is capable of being tamed. Pennant saw one as tame as a dog, and Buffon another; and Mr Bruce, when he met them, made no more of them than so many hogs grunting about him.

CAT. *Genus 19.* **T**HE LION, (Pl. 26.) vulgarly called the king of beasts, were animals left to themselves, would, among them, be omnipotent. Man is the only enemy that can damp his courage and reduce his numbers. Nature has not made him prolific, and the tiger, the elephant, and buffalo have been known to overcome him; but these victories are accidental, for the strength and agility of the lion render him superior to any animal. It is to this nervous conformity that he owes his superiority more than to his courage. He does not, like the dog, attack his foe, but lies in wait and seizes his unwary prizes as they pass. This habit is indeed necessary to him, for the antelope would escape by his speed, and the monkey by his dexterity. When urged by hunger, he will attack the strongest animal; but, in the neighbourhood of man, whose ingenuity suggests so many modes of attacking him, he is not only circumspect but cowardly. His ferocity is in proportion to the heat of the region which he inhabits. The lion that traverses the burning deserts of Belidulgerid or Zaara is more strong, more

fierce and terrible, than those of the neighbourhood of Mount Atlas. A temperate climate which relaxes his vigour awakens his fears. A single lion of the desert has been known to attack a whole caravan, and if, after an obstinate engagement, he finds himself weakened, he retreats fighting. On the other hand, in his own country, a Negro or a Hottentot will attack a lion face to face, and with very slight weapons put him to flight. He is now principally confined to the interior parts of Africa, where he is sometimes nine feet in length, and six in height; the smallest full grown lion being five and a half feet long, and three and a half feet high. He is not a cruel animal, he kills rather from necessity than from choice, he destroys no more than he eats, and when his hunger is appeased, he is mild and gentle. His aspect corresponds with this forbearance of disposition; his look is grave but firm; his gait is slow, oblique, and stately; the shaggy hair that extends from the top of the head to below the shoulders, and falls down to his knees, gives a sagacity to his appearance which is peculiar to himself; on the other hand, when he erects his mane, rolls his eyes, extends his jaws, and roaring, lashes his sides with his tail, there is not a more terrible object. The lioness has no mane, and is less and weaker than the lion, but when she has young, she becomes dreadfully furious. The lion is caught in pitfalls, and is shot by means of baiting him with the figure of a man so placed among loaded guns, that they discharge themselves into his body the instant that he throws himself on the dressed figure. He is also hunted by dogs, and when nearly overtaken, he sits down on the defensive. The hounds surround him and rush on him all at once, and tear him in pieces. To effect this, requires twelve or fifteen dogs, with the certainty of losing some of them. That the chariot of Bacchus was said to be dragged by lions, is no proof that they were ever tamed. The story is not necessary to be true, more than the fable of Juno's peacocks or Venus' doves. But that the lion is possessed of considerable docility is certain. When taken young and brought up among domestic animals he is harmless and sportive, and knows and caresses his master; if his natural ferocity breaks

out afterwards, it is rarely turned against those who have been kind to him.

The **TIGER** (Pl. 26.) is of a dark yellow colour, streaked with black: His body is from seven to eleven feet in length. Of the most rapacious and cruel disposition, he delights in murder and he plunges his head into the body of the animal, as if it were to satiate himself with blood, with which he is never satisfied. No sooner has he torn a victim to pieces, than with undiminished fury, he seizes another. He puts to death whole troops of domestic animals, and attacks young elephants, rhinoceros's, and sometimes braves the lion. He lies in wait on the banks of rivers. Gorged with carnage, he must often thirst himself, and such animals as would also drink of the stream, here become his prey, and increase the multitude of his massacres. This thirst for blood seems to be his only instinct, for, at times, he dreads not the aspect of men or their weapons. It is to be hoped, however, that the periods of this blind fury are but short, and that he is, for the most part, under circumstances of apprehension, for upon some occasions he is a mere poltroon. In the beginning of last century, some gentlemen and ladies being on a party of pleasure, under a shade of trees, on the banks of a river in Bengal, observed a tiger preparing for its fatal spring, one of the ladies, with amazing presence of mind, laid hold of an umbrella, and furred it full in the animal's face, which instantly retired, and gave the company an opportunity of removing from so terrible a neighbour. Another party had not the same good fortune, a tiger darted upon them while they were at dinner, seized on one gentleman, carried him off, and he never was more heard off. The tiger is peculiar to Asia and the Indian Isles.

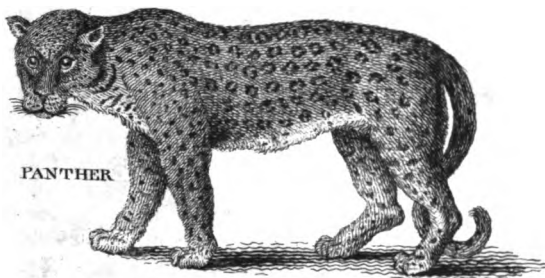
The **PANTHER** (Pl. 27.) is of a bright tawny colour, elegantly spotted with roundish spots. He is about the size of a large dog, though he sometimes measures nine feet from the point of the nose to the end of the tail. The panther is, in Africa, what the tiger is in Asia, a ferocious and cruel murderer. His manner of taking

his prey is the same as the tiger, he lurks in thickets or creeps on his belly, till within reach, when he leaps and takes it by surprise. That he climbs trees in pursuit of the monkey and lesser animals, of which he destroys a great number, is comparatively his pastime; for, when he is pressed with hunger, he attacks the strongest animal, or man, without distinction. He is not, however, so perfectly untractable as the tiger; for though he cannot be said to be tamed, he is so far subdued as to be subservient to the purposes of hunting. He is brought out to the field in a cage, carried on a cart. When the game is sprung, the door of the cage being opened, he leaps with repeated bounds towards the animal, throws him on the ground and strangles him. If he happen to miss his aim, he becomes mad with rage, and sometimes turns with fury on his master. To prevent accidents of this kind, it is common, on these excursions, to carry a piece of flesh, a lamb, or a kid, which is thrown to him and appeases his fury. The Panther was well known in the circus of Rome. Scaurus at one time exhibited 150, Pompey 410, and Augustus 420 panthers.

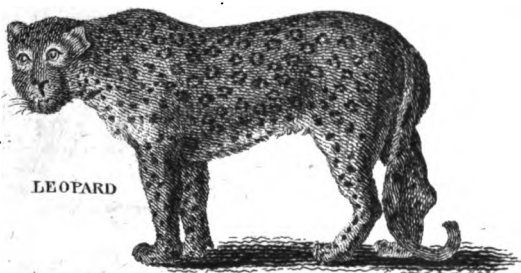
LEOPARD, (Pl. 27.). The beautiful skin of the leopard is a lively yellow, spotted with small black spots, disposed in groups. He is considerably less than the panther; he is equally voracious and cruel, and perhaps more untractable, for it is not said that he has ever been tamed or made use of in hunting. The negroes in Lower Guinea take these animals in pits covered with slight hurdles baited with flesh. They tear off the skin and eat the flesh, of which they make a banquet. In France, the skins of a bright yellow, with well defined black spots, have brought eight or ten louis d'ors each. The leopard is found in Persia, India, and China. It also inhabits Arabia and Egypt, where it does no harm to man, unless provoked, but will enter houses by night and destroy cats.

HUNTING LEOPARD, (Pl. 29.) is of a light tawny brown colour, marked with small round black spots. It inhabits India, where it is tamed and trained for the

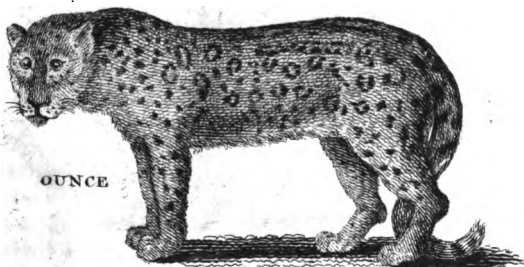
Plate XXVII.



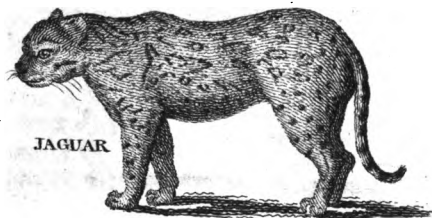
PANTHER



LEOPARD



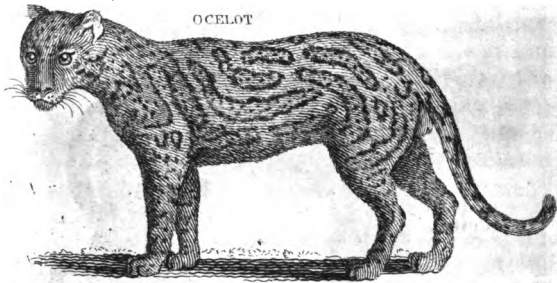
OUNCE



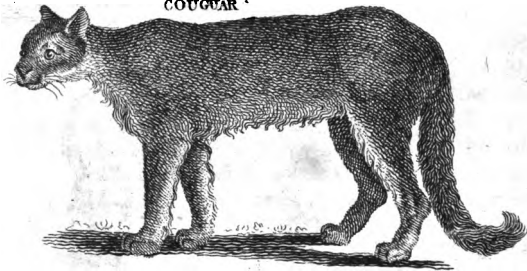
JAGUAR

Plate XXVIII

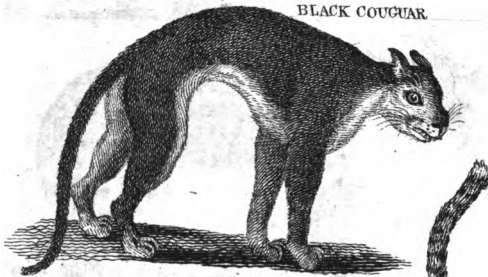
OCELOT



COUGAR



BLACK COUGAR



MARGAY



chace of antelopes, jackals, and other animals. It is chained and hoodwinked till the moment of pursuit. When it discovers the game, it does not directly spring at it, but winds along the ground, stops, conceals itself, and steals on for a proper advantage, it then darts on the animal with surprising swiftness, and overtakes it by the rapidity of its bounds; but, if the first efforts, consisting of five or six amazing leaps, are unsuccessful, it misses its prey, losing its breath, and finding itself unequal in speed, it stands still, gives up the point for that time, and readily returns to his master.

The OUNCE (Pl. 27.) is of a whitish ash-colour, spotted with black; is about three feet and a half long. It inhabits Barbary, Persia, India, and China. It is of a more gentle and mild nature than most of the preceding; and, like the last species, is used for the chace of antelopes and hares, but instead of being carried in a waggon like the panther, or chained like the hunting leopard, it is carried on the crupper of the horse. It is as much under command as a setting-dog, returns at the least call, and jumps up behind its master.

The JAQUAR OR BRASILIAN TIGER (Pl. 27.) is of a bright tawny colour, marked on the back with long black stripes on the sides, with oblong spots open in the middle. It inhabits the hottest parts of South America, and grows to the size of a wolf. It is a very wild and ferocious animal, but cowardly and easily put to flight, either by the shepherd's dog, or by a lighted torch. In the night time it has a fearful howl. It watches for its prey on the banks of rivers, and seizes it by surprise. Like the tiger, it buries its head in the body of its prey, and sucks the blood before he devours it.

The OCELOT OR MEXICAN TIGER (Pl. 28.) is of a bright tawny colour marked lengthways, with long stripes of black, hollow and tawny in the middle, in which are sprinkled small black spots. It is the most beautiful of all spotted animals. The beauty of the leopard is comparatively flat and formal, with the symmetry of the variegated spots or the liveliness of colour.

E

ing that embellishes the skin of the ocelot. The female is less elegantly spotted, and the colours are fainter. This species is four times the size of a cat, and is fierce and cruel, but afraid of mankind. As it prefers blood to flesh, it destroys a great number of animals. It preys on foals, calves, and game, and climbs trees in pursuit of the monkey.

The PUMA or COUGUAR, (Pl. 28.) is of a pale reddish brown; the body from the nose is about five feet, the tail is about two feet long. It inhabits America from Canada to Brazil, and has been mistaken for the lion. It is the scourge of the colonies in the hotter parts of America, being fierce and ravenous in the highest degree. It swims over broad rivers and attacks cattle even in the inclosures, and when pressed with hunger, will also attack the human species. In North America, its fury seems to be subdued by the climate, and the smallest cur, in company with his master, makes it seek for security by running up trees; but, as it is very destructive to domestic animals, it is a great nuisance to the planter. It climbs trees and lies in wait of the moose and other deer; when the animal passes underneath, it then drops and soon destroys it. It conceals that part of the carcase which it cannot eat. It purs like a cat, and at other times, makes a great howling. The fur is soft and valued by the Indians as a winter covering: They also eat its flesh.

The BLACK CONGUAR (Pl. 28.) is covered with short glossy hair of a dusky colour. It grows to the size of a heifer at a year old. It is fierce and much dreaded by the natives, but happily it is a scarce species. The ant-eater is often more fatal to it than a more active enemy. As soon as the jaguar attacks the ant-eater it lies down on its back, fixes on him, and suffocates or strangles him with its long claws.

CAYENE CAT OR MARGAY, (Pl. 28.) is about the size of the common cat, of a bright tawny colour, the face is striped downward with black, the body is marked with stripes and oblong black spots, the tail is very long and marked with black. It inhabits South America.

lives much in trees, kills feathered game and poultry, is very active and goes by bounds or leaps. It brings forth two at a time, and at all seasons. It makes a noise like the common cat, and appears only a variety of the wild kind, but its head is more square, its hair shorter, and its muzzle and tail longer. It is quite untameable.

The **WILD CAT**, (Pl. 29.) is three or four times as large as the house cat; is covered with soft hair, of a yellowish white colour, mixed with grey; the grey is disposed in stripes, which point downward from a list that runs along the back. It is found in the woody and mountainous parts of all Europe. It lives mostly on trees, and feeds only by night. It is exceedingly fierce and destructive, and makes dreadful havock among poultry, lambs, and kids. In this country, it was reckoned one of the beasts of chase, as appears by the charter of Richard II. to the Abbot of Peterborough, giving him leave to hunt the hare, the fox, and the wild cat. It is the stock or origin of the domestic cat in all its varieties.

The **COMMON CAT** is a useful, but deceitful animal; and, though it lives in our houses, it can hardly be called domestic. Its attachment is only to the place where it is fed. However pampered and caressed, it has only the appearance of friendship. It is constantly bent on theft and rapine; is full of cunning and dissimulation; it conceals all its designs, seizes every opportunity of doing mischief, and then flies from punishment. Although, when young, it is gay and playful, it possesses an innate malice and perverse disposition, which increases as it grows up. The movement of its back and tail, when it purs, expresses pleasure; but there is an ambiguity in all its actions. It is never delighted with you; it steals the morsel that you hold out to it. It has no confidence in you; and, for an accidental injury, no atonement you can make will procure an expression of forgiveness. It never acts but for itself; it is incapable of restraint, and therefore it acquires nothing from education but to disguise its treachery, and

appears satisfied. The Cat sees with very little light ; the noon-day sun almost blinds it. Its eyes shine in the dark ; and its hair, when rubbed across in the dark, emits electrical fire. It hates to be wet ; it avoids cold and bad smells, but is fond of perfumes ; is very cleanly, loves ease, reposes in soft and warm places, and basks in the sun. It washes its face with its fore-feet ; it always lights on its feet ; and it is even proverbially tenacious of long life. It is the natural enemy of rats and mice, and watches their motions with great gravity. It hunts only by the eye. When it seizes its prey, it sports with it, torments it for a long time, and then kills it ; for, however well fed, its sanguinary disposition must be gratified. The female goes with young eight weeks, produces four times a-year, and brings four or more at a time. They acquire their full growth in fifteen months, and live nine or ten years. The colours are various ; black, white, grey, and mixed ; spotted, striped, and marked multifariously.

The CAT of ANGORA is the most remarkable variety of the common cat having hair of silvery whiteness and silky texture ; and very long, especially about the neck, where it forms a sort of ruff. It has its name from the country it comes from, being the same which produces the fine-haired goat. In our climate it degenerates after the first generation.

The LYNX (Pl. 39.) is a kind of cat with a short tail ; is remarkable for brilliant eyes. Its ears are erect, penciled at the end, and longer than those of the common cat, which otherwise it greatly resembles. It is covered with long soft hair, of an ash colour, and spotted more or less distinctly with dusky spots. It pursues the squirrel and wild cat to the tops of trees ; it lies in wait upon the branches for stags, goats, and other animals ; darts suddenly on them as they pass ; seizes them by the throat, and sucks their blood ; it afterwards devours the brain, and in this state it often leaves them for fresh prey. Its fur is valuable for softness and warmth ; and vast numbers are brought from North America, and the north of Europe and Asia. As the colour of the animal is affected with the climate and the season, those which are taken in win-



HUNTING LEOPARD



WILD CAT



DOMESTIC CAT



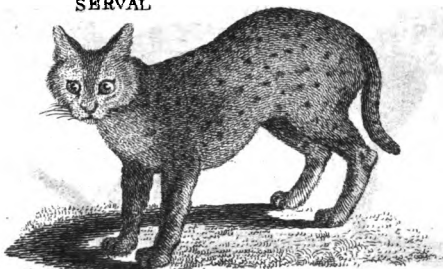
CAT OF ANGORA

Plate XXX.



LYNX

SERVAL



CARACAL



CARACAL OF BENGAL



ter, and in the forests farthest north and east, are the whitest, and have the most distinct spots.

The **SERVAL** (Pl. 30.) is of a yellowish colour, spotted with black, and is larger than a wild cat. It is fierce, and untameable; neither to be subdued with captivity, nor softened with kindness. It inhabits the woods of the mountainous parts of India, and is seldom seen on the ground. It lives and breeds on trees, where it seizes birds and monkeys, on which it chiefly subsists. It has a fine fur.

CARACAL, or **PERSIAN LYNX**, is often brought up tame, and used in the chase of the lesser quadrupeds, and the larger kind of birds, as the cranes, pelicans, and peacocks, which they surprise with great address.

The **CARACAL** of **BENGAL** is mentioned by Buffon, as a variety of the above species; but the length of his tail ought, perhaps, to exclude him from the appellation of a **Lynx**.

BEAR.—*Genus 20.* (Pl. 31.) **THE BEAR** is a solitary animal. His haunts are the rudest and most impenetrable wilds. He will not reside where the human foot can approach; but retires from the neighbourhood of cultivation; and, in the depth of the forest, reposes in the hollow of a decayed tree, or seeks a cavern among inaccessible rocks. He is addicted to grow fat, and in autumn is so gross that he is hardly able to walk: He then retires to his den; and there, alone and without provisions, resides for several weeks, without once going out. During this confinement, he subsists on his fat re-absorbed, or by sucking his paws, which are said to afford him a great deal of nourishment, the soles of his feet being composed of a papillæ-like glandular substance, which is replete with a milky juice. In this state, he is not torpid, like the marmot, though oppressed with laziness from the load of fat that surrounds him. The fat upon his sides and thighs, which is sometimes ten inches thick when he retires to his den, is entirely dissipated before he leaves it,

and he comes abroad almost famished. The male and female have separate abodes. The female, in her cavern, prepares a bed of moss and herbs for her young. The males are said to devour the young cubs, if they discover them; and the females defend them with astonishing fury, and suckle them with affection. The bear inhabits the temperate or frigid zones. He is hunted with eagerness for his fat, and his fur; and, in North America, occasions a very lucrative trade. The bear is ferocious, irritable, and sometimes capricious; he is, however, susceptible of education. When tamed, he is mild, and even obedient to his master. He is taught to dance on end to the sound of music, and his paces have some respect to the measure. He begs, carries a staff, tumbles, and performs other ridiculous manœuvres at the word of command; but to do this he must be taken young, and kept under constant restraint; still he must be treated with some reserve; if abused, he grinds his teeth and growls with anger; and, if goaded to fury, he is dangerous; for, by embracing a man with his forefeet, he can easily squeeze him to death. Bears have been distinguished into brown and black. The brown Bear is represented as a ferocious and carnivorous animal; the black Bear is said to be only wild, and to live solely on fruits and roots. It is, however, probable, that their general food is vegetable; that occasionally they are all carnivorous, and that they are only varieties of the same kind.

POLAR BEAR (Pl. 31.) has a long head and neck, and is covered with long white hair. This ferocious animal is only found in the frigid climates, where, upon the margin of the sea, he preys upon the seal, or sails upon the islands of ice, in quest of fish or young whales. He will even attack men; and, if he discover where a dead body is buried, he speedily disinters and devours it. He attacks the walrus, but the tusks of this animal give it a decided advantage. Polar bears swim, and dive admirably. They retreat in winter under the snow, where they form deep dens. They grow to a vast size; their skins, which are brought to this country, sometimes measure fourteen feet in length. Their flesh is said to taste like mutton, and they yield a great quantity of oil.

Plate XXXI.

BEAR



WHITE BEAR



POLAR BEAR

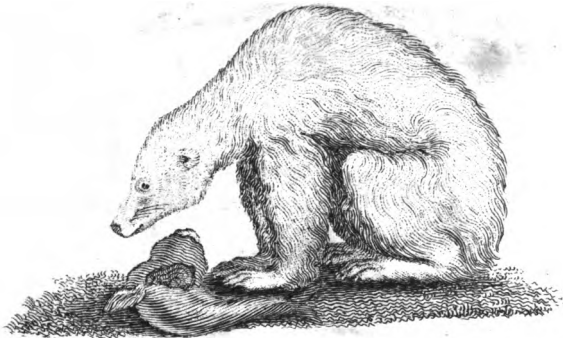


Plate XXXII

GLUTTON



RACCOON



BADGER



OPPOSSUM



The **GLUTTON** (Pl. 32.) has derived his name from his voracious appetite. His back is arched, his head low, his legs short, and his body almost trails on the ground. He walks slow, and can hardly run; but his ingenuity supplies this incapacity to overtake his prey. He climbs trees; and, among the trees, lies in wait for the stag, the elk, or the rein-deer. When his prey approaches, he darts from his ambush, and with his claws and teeth, fixes himself so firmly on the neck of the victim, that in vain he plunges or rubs himself on trees; his enemy is tenacious of his hold, and continues to enlarge the wound that leads to his heart, till, exhausted and sick with loss of blood, he at length sinks beneath the merciless foe, who, it is said, eats a most inconceivable load of his flesh. The Glutton is capable of being tamed; and in that state, though he eats a great deal, his voracity is not extraordinary, and he is by no means ferocious. The skin of the Glutton makes a most beautiful fur, extremely black, and so glossy that it reflects a shining whiteness like satin. The Glutton is double the size of the Badger, and found in all the northern countries of Europe, Asia, and America.

The **RACCOON** is of a blackish colour, about the size of a small badger. His movements are oblique, and he rather gambols as walks. He is very agile, and he climbs trees with alacrity. He is peculiar to the southern parts of America. He is easily tamed; but, though familiar and sportive, he is troublesome and mischievous. He is very inquisitive; he lifts every thing, and examines it with his paws, which he uses, like hands, to carry his meat to his mouth. He dilutes in water every thing he intends to eat. He throws his bread into the basin that holds his water; and, unless pressed with hunger, he removes it not till it is well soaked. He loves sugar, milk, grain, and roots; but he rejects every thing for flesh or fish.

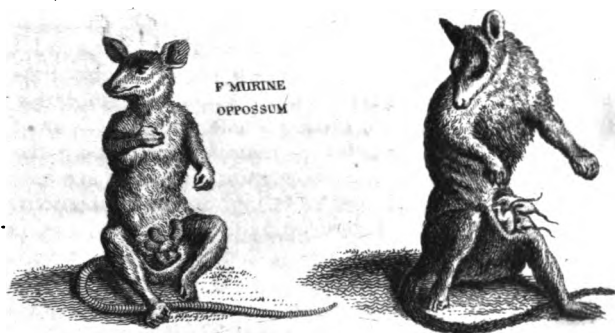
BADGER.—Genus 2^d. **THE BADGER** (P. 32.) resorts to the most retired parts of the forest, and there digs for himself a subter-

aneous abode, where he indulges his indolent and solitary disposition. As if day-light were painful to him, from this dark retreat he never ventures abroad but at night. He sleeps the greatest part of his time, and grows fat though he is neither ravenous nor eats a great quantity. He eats roots, nuts, grain, insects, and frogs; but prefers flesh to every other food. During the winter, he is in a state of torpor, like the marmot or dormouse; so that he may be said to sleep three-fourths of his life. The Badger is frequently deprived of his habitation by the Fox, who, unable to make him quit it by force, teizes him by standing sentinel at the mouth of his hole, which he defiles with his dung, and where he continues to persecute him till he abandons the place. The Badger runs very slowly; when he is overtaken by dogs, however, he makes a vigorous defence: He throws himself on his back, and with his teeth and claws, which are exceedingly strong, he inflicts the most dangerous wound. The young Badger is easily tamed, and will play with the dogs, and follow the person who feeds him. The Badger is a clumsy animal, covered with long rude hair, ash-coloured on the body; the belly and legs black. He is very cleanly. The male and female are seldom seen together. The female makes a commodious bed for her young; the herbage which compose it she cuts down, bundles up, and trails along with her feet to the bottom of her hole. She brings forth three or four at a time. The Badger is a scarce animal, but is found in most countries of Europe and Asia.

OPPOSSUM.—*Genus 22.* **THE VIRGINIAN OPPOSSUM** (Pl. 32.) The most curious circumstance in the history of this animal is, that the female has a large pouch under her belly, in which he receives and nourishes her young. This pouch contains her teats; and the young, as soon as they are brought forth, take shelter here, and adhere so closely that they cannot be easily separated. They abide in this new receptacle till they have acquired some strength, being at first very small, weak, and blind. The mother, who can open and shut the pouch at pleasure, then

Plate XXXIII

FEM VIRGINIAN OPPOSSUM



MEXICAN OPPOSSUM



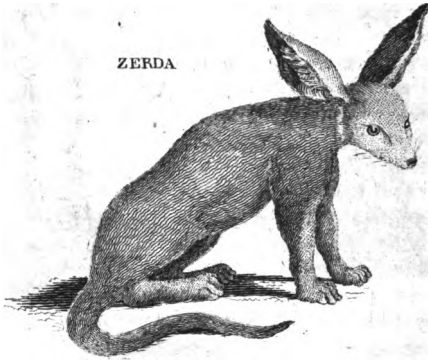
CRAB EATER



PHALANGER



ZERDA



KANGUROO



allows them to go out in quest of food, and receives them back on the appearance of danger, or when she means to transport them to another place. She has five or six at a time. This Opposum has a round body, covered with dirty and dusky hair. The legs are short. A small part of the tail is hairy; the remainder is covered with small scales, and possesses the prehensile power of some of the monkeys. With this it hangs from the branch of a tree, and reaches its fruit, or by swinging it throws itself from one tree to another. It hunts eagerly after birds, and their nests, and is also very destructive to poultry.

The KANGAROO (Pl. 34.) inhabits the western part of New Holland. The fore legs of this animal, which are very short, are rendered useless for walking from the length and strength of the hind legs, which are nearly as long as its body; it, therefore, goes entirely on its hind legs, and its motion is performed by leaps. In this manner it springs from rock to rock, and progressively over bushes seven or eight feet high. When it is in motion, it carries its tail at right angles with its body; and when it alights, looks often back. It is very timid at the sight of men; it leaps from them with amazing velocity, and is much too swift for grey hounds. It lurks in long grass, and feeds on vegetables. From the nose to the tail, it is about three feet; the tail is about three feet nine. It is dun-coloured, good eating, and weighs eighty or ninety pounds.

The MURINE OPPOSSUM, (Pl. 33.) instead of a pouch in the female of this animal, the skin forms two longitudinal folds near the thighs, between which the young, to the number of ten or twelve, affix themselves after birth. This animal, therefore, cannot hold her young when they become large, like the Virginian Opposum; but the young then cling to their mother on any alarm, and she runs off with them up the nearest tree. In other respects, this and the Virginian Opposum are nearly alike: They both burrow in the ground, have prehensile tails, and are found in Mexico, and South America.

The MEXICAN OPPOSSUM (Pl. 33.) is larger than the Murine Oppossum. Their other differences of form are slight, and their manners are the same.

The CAYENNE OPPOSSUM, OR CRAB-EATER, (Pl. 33.) lives principally on crabs. When he cannot reach the crabs with his paw, he introduces his tail into their holes, and hooks them out. If the claws of the crab get hold of it, the animal cries so loud that it is heard at a great distance, and resembles the voice of a man, though its ordinary voice is a kind of grunting like pigs.

The PHALANGER, (P. 33.) The Virginian, Murine, and Mexican Oppossums, are American animals. This species is from the East Indies, and very much resembles them, claiming undoubted kindred to the genus, by having a thumb on the hind foot.

The ZERDA (Pl. 34.) was introduced by mistake here, and belongs to the genus Dog.

WEASEL.—*Genus 23.* (Pl. 35.) **THE WEASEL**, in winter, frequents out-houses, granaries, and barns, where it makes dreadful havoc among rats and mice. It pursues them into their holes, and does more execution than many cats; but its other depredations undo the merit of this service. It climbs into pigeon-houses, and destroys the pigeons; and among poultry, it attacks the chickens and young birds; it kills them by a single bite near the head, and then one by one carries off the whole. It also breaks the eggs, and sucks them with great avidity. Its robberies are always committed in the night, and it sleeps most part of the day. In summer, it goes farther from houses, and is found along rivulets, in ruins, and in brush wood in search of birds. It is said the young can be tamed, and rendered familiar and caressing, by stroking it often on the back, and threatening, and even beating it when it bites. The weasel, when irritated, has a fætid smell. The body is a tawny brown above, and white below. It is common in temperate and warm climates, but rare in northern regions.

STOAT, or ERMINE, (Pl. 35.) so famous for its white fur, inhabits Russia, Norway, and Lapland. It is only on the approach of winter that it puts on this snowy covering; for its summer dress, and what it would constantly wear but in a northern region, is a light tawny brown. It in every respect resembles the weasel, but that it is larger, and has the end of its tail black. The Ermine is fond of eggs; and in Norway, when the sea is calm, it swims to the islands which lie near the coast, where there are vast quantities of sea-fowl. This little animal, ten inches long, kills both the rein-deer and the bear; but it succeeds by its smallness. It jumps into one of these animal's ears, when asleep, and adheres so fast that it cannot be disengaged. It likewise surprises eagles and heath-cocks; it fixes on them, and never quits them, even when they mount in the air, till the loss of blood makes them fall down. Its principal food, however, is mice. Neither the Ermine nor Weasel eat honey.

POLECAT, or FITCHET, (Pl. 35.) A simple method of diminishing the number of rabbits, where they are too numerous, would be to bring among them a single family of Polecats, which is sufficient to destroy a whole warren. They follow the rabbits who cannot escape them into their hole, and destroy them without mercy. Polecats, though they commonly burrow under the ground, sometimes content themselves with a lodging under hay-ricks. They avoid the extremes of cold and heat, and are never seen in snow, nor found in warm climates. They are ravenous of honey, and attack bee-hives. They climb trees in quest of birds nests: they seize the birds, and destroy the eggs. They are equally terrible in the court-yard, the volery, and the pigeon-house. They emit, particularly when angry, a most intolerably fetid smell. They inhabit temperate countries. The body is of a chocolate colour, 17 inches long; the tail 6.

The **FERRET (Pl. 35.)** is a native of warm climates, and lives in temperate countries only in a domestic state. It is easily tamed, but has a fiery eye, and is very irascible. His body is pale yellow, 14 inches long; the tail 5. Like the polecat, its ordure is always disagree-

able, but very offensive when irritated. They are equally the enemy of rabbits. It is said that the Ferret was originally brought into Spain from Africa, to free that country from the multitude of rabbits with which it was infested. When a ferret sees a rabbit for the first time, he flies upon it with fury: If it be dead, he bites it; but, if it be alive, he seizes it by the throat, or the nose, and sucks its blood. This ferocious instinct is made use of, in the tame ferret, to chase the rabbits from the holes, when they are caught and secured in nets. He is muzzled when he is let into the burrow, that he may not kill the rabbits, and that he may not be lost; for, when he is satiated with blood, he falls asleep.

The Nems (Pl. 36.) is a Ferret from Egypt.

MARTIN. (Pl. 35.) Among animals of this kind, the vessels which generate an unctuous matter so offensively fetid in some, produce a species of perfume in others. The Weasel, the Polecat, &c. have an effluvia of the first kind; the Martin, the Pine Martin, and the Civet, &c. of the latter. The Martin has a musky smell, which is, however, no farther removed from being offensive than that it is not disagreeable. The Martin is a lively active animal. He runs up rough walls with great dexterity, and finds an easy access to the pigeon and the hen-house. He seizes birds in their nests, and preys on mice, rats, moles, and is remarkably fond of honey. The fur of the Martin is of some value; it is ash-coloured at the bottom, chestnut in the middle, and tipped with black. The Martin is found in most parts of Europe; is 18 inches long; the tail 10.

SABLE. The fine fur of this species has been long and universally admired. It differs from all other furs in this circumstance, that the hair turns with equal ease on every side. The blackest furs are of the highest value. The Sable is principally found in Siberia, Kamtschatka, and the Kurille isles. They live in holes of corrupted trees, or under their roots; and construct their nests of moss, branches of trees, and turf. They prey upon weasels, ermines, squirrels, and especially on hares:

Plate XXXV.

WEASEL



ERMINÉ



POLE CAT



FERRET



MARTIN



SABLE



PlateXXXVI.

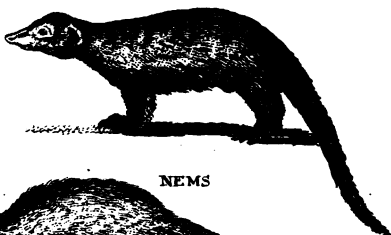
GRISON



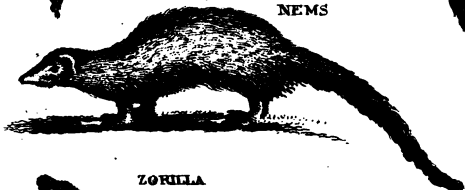
GREAT MANGOUSTE



MANGOUSTE OR ICHNEUMON



NEMS



ZORILLA



SKUNK



they also catch small birds and woodcocks. In autumn, they eat cran-berries, hurtle-berries, and the fruit of the service-tree; but it is said that this food creates an itch which causes them to rub against trees, and greatly injures their fur. From November to February is the best season for Sables; their fur is then blacker and longer than at other times. The finest Sable are sold in pairs, perfectly matched; and such pairs are dearer than single furs of the same goodness. Formerly the hunting of Sables was the task of unhappy exiles, who were sent into Siberia, and obliged to furnish a certain number of furs. At present, the hunters form themselves into companies of forty, which are subdivided into smaller parties. Each company has a leader; but they have a commander in chief who directs the whole. When they arrive at the rendezvous, he assigns to each band a particular rout; they are furnished with a small covered boat, with provisions for three or four months, and with a dog and net for every two men. When arrived at the hunting country, they build tents, and wait till the waters are frozen. They then penetrate into the woods; and, that they may know their way back, they mark the trees as they advance. In the hunting quarters, they form huts of trees, and bank up the snow around them. Near these they lay their traps. They continue to advance, and build new huts in every quarter. They return successively to every old one, visit the traps, take out their game, and skin it; but this operation only is performed by the chief of the party. In the mean time, they are supplied with provisions, which are brought to them on sledges from the different places on their rout, where they are obliged to form magazines. The traps are a sort of pitfalls, with a loose board placed over each, baited with fish or flesh. When Sables grow scarce, the hunters trace them on the new-fallen snow to their holes, place their nets at the entrance, and wait, watching their coming out, for two or three days successively. When the Sable leaves its hole, it seldom escapes; for the dogs slay it when entangled in the net, and the hunter, if he discovers it on a tree, shoots it with a blunt arrow, that the fur may not be injured. The hunting being finished, the hunters re-assemble, report to their leader the num-

ber of Sables taken, and re-embark as soon as the rivers are clear of ice.

The GRISON (Pl. 36.) has the upper part of the body of a deep brown; each hair tipped with white gives it a hoary look. Its belly, legs, and thighs are black. It is seven inches long, and inhabits Surinam.

The INCHNEUMON, or MANGOUSTE, (Pl. 36.) is in Egypt what the domestic cat is in Europe; but its instincts are more extensive. It is tame and domestic, and not only kills rats and mice, but it knows to discover the crocodile's eggs, and destroys them. It indiscriminately preys upon birds, serpents, lizards, and insects, and this voracious instinct is not appalled by the rage of the dog, or the malice of the cat. It easily worries the cat that is larger and stronger than itself; and so furiously it combats with the dog, that the largest seldom overcomes it. It attacks without dread the most fatal of serpents, the Naja, and the Cobradi Capello. When wounded, it is said that it possesses a certain antidote against the poison, in a root which it goes immediately in quest of. The Inchneumon is amazingly agile; it moulds itself into every shape, rises on its limbs, contracts its body, and erects its head; it creeps upon the ground, twists, and seems to lengthen its body like a serpent, and sits often on end. The ancient Egyptians held this animal in great veneration, and it still deserves protection. The service it performs in destroying the crocodile's eggs alone is invaluable, for the multiplication of these monstrous reptiles were indeed terrible, if it bore any proportion to the eggs destroyed. The Inchneumon inhabits Egypt, Barbary, India and its islands. That of Egypt is the largest, and sometimes measures forty-two inches from the point of the nose to the extremity of the tail. That of India is not half the size, and its colour is generally of a mottled brown; but, like other animals in a domestic state, it is subject to varieties of colour, as well as of shape.

ZOFILLA. In the southern and temperate parts of America, the Stiffing, Striated, Skunk, and Zorilla

(Pl. 36.) Weasels are remarkable for emitting the most pestiferous, suffocating, and fætid vapour. This effluvia, however, is only discharged as a mode of defence when the animal is beaten or pursued. It is of so expansive a nature, that it infects the air for a great space, and is so intolerable to dogs that they are often necessitated to let the game escape. Indeed, most dogs fly from it, and can only persevere by occasionally thrusting their noses in the earth, to relieve them for a new attack. A dog that has killed one is obnoxious for some days. If clothes are by any means sprinkled with the fluid that occasions this nauseating stench, it is almost impossible to extract it. One of these that was killed in a cellar so affected the woman who killed it, with its noxious odour, that she sickened, and was badly for some days; while the provisions were so tainted, that it was necessary to throw them all away. Notwithstanding this, these animals, in their ordinary temper, are inoffensive. They are easily tamed, and follow their master like a dog. They are reckoned good eating; but, to prevent a bad flavour, the bladder must be taken carefully out, as soon as the animal is killed. The Zorilla is beautifully marked with black and white stripes, and has an elegant tail. It is always less than the polecat.

The SKUNK (Pl. 36.) has the upper part of his body white, the under part black, and very full of long coarse hair. He is about the size of the polecat.

The R^AT^EL (Pl. 37.) inhabits the Cape of Good Hope, and lives principally on honey. It preys in the evenings; it ascends the highest part of the desert, and will then put one foot before its eyes to prevent the dazzling of the sun. This it does seemingly to listen, and look for the Honey-guide, a species of cuckoo that lives on bees, and whose call conducts it to their nests. The Hottentots follow the same guide. The Ratel, who cannot climb trees, when he finds the bees are lodged in them, through rage and disappointment, bites off the bark at the bottom. By this sign also, the Hottentots understand and know, that above there is a nest of bees. The hide of the Ratel not only defends him against the

sting of bees, but it is so exceedingly tough, and covered with such stiff hair, that dogs cannot fasten on it. A pack, that would tear a middle-sized lion to pieces, make no impression; but, having worried it, they will leave it for dead, without having inflicted a wound. The upper part of the body is grey; the under black; and there runs along the sides a dusky line. The length of the body is 40 inches.

The CIVET, (Pl. 37.) that produces the famous drug, and perfume, which goes by its name, though it be a native of the warm climates of Asia and Africa, under proper management to defend it from the cold, will live in temperate countries. Numbers of them are kept in Holland; but, though they breed, and yield their perfume in that country, they soon degenerate. The perfume is of a grease-like substance, and secreted in an aperture under the tail. It is collected two or three times a-week; and this is effected by keeping the animal in a narrow cage, open at one end. Through this opening it is drawn a little out by the tail, and secured by the hind legs. The command of the sac that contains the perfume being thus obtained, the matter is scraped from all its internal sides, with a small spoon, and is then put into a vessel and carefully covered up. This odorous liquor is always in proportion to the quantity and goodness of the animal's food. Boiled flesh, eggs, rice, birds, and fish, are the kinds that it prefers. The civet, in a wild state, preys on fowls, and is very ferocious, but it is easily tamed so as to be approached and handled without danger; it is active and nimble; its eyes sparkle in the dark; it drinks little; its back and sides are cinereous, and covered with large dusky spots. It generally measures about two feet in length, the tail twelve inches.

The GENET (Pl. 37.) is kept in houses at Constantinople like the domestic cat, for the purpose of killing mice. It has an aperture like the civet that secretes a kind of perfume that is weak and soon lose its odour. It is of a pale tawny colour, spotted with black. It is about the size of a martin.

OTTER. *Genus 24. (Pl. 37.)* **T**HE OTTER in a fish pond is like the pole-cat in a hen house, a most rapacious and destructive animal. He kills more fish than he can eat, and then carries off one in his mouth. He burrows on the banks of rivers. The entrance to his hole is beneath the water, from whence he works upwards, and it is said, that an orifice or air-hole is always so contrived, that it is in the midst of a bush. The legs of the otter are so jointed, that he can bring them to a line with his body and use them like fins, his toes also are joined by membranes so that he swims fast and easily. He often dives, but as he requires the aid of respiration, he cannot remain long under water; and if, in pursuit of fish, he happens to be caught in a net, he is drowned. It is said that he always hunts against the stream, that he may the easier return when loaded with his prey. His voice is a low whistle, which is occasionally loud, and heard at a great distance. When attacked by dogs he makes a furious defence, bites cruelly, and never quits his hold till death loosens his jaws. The female brings forth in March, and the young ones, four or five in number, are banished from the burrow at the end of six weeks or two months. Though a fierce animal, the otter is yet capable of being tamed. He will follow his master, he will fish for him, and it is said, that he will bring fish home to the house. Otters are found over all Europe and the North of Asia. In North America they abound, are darker and have a finer fur than those of Europe. The otter is wholly of a deep brown colour except a spot on each side of his nose, and one under his chin. He has short ears, thick lips, and large whiskers.

LESSER OTTER (Pl. 37.) has so beautiful and fine a fur, that it is reckoned only inferior to the sable. It is of a tawny colour, the short hair being yellowish, and the long ones black. It has an effluvia as offensive as the pole-cat. It inhabits Poland and the north of Europe, is in shape like the greater otter, but is only one third of the size. It is the Minx of North America.

DIV. II. SECT. II. *With two Cutting Teeth.*

CAVY. *Genus 25.* **T**HE CABIAI (Pl. 38.) inhabits South America, lives in fen-ny parts and in the neighbourhood of rivers. It grows to the size of a hog of two years, its head and nose are large and thick, its legs are short and the toes long, connected near the bottom with a small web. It lives much in the water where it catches fish like the otter, carries them in its mouth, and eats them on shore, it besides eats fruit, vegetables, and sugar canes. These animals always keep in pairs, male and female, or they assemble in herds. They only come abroad at night, and are then very destructive in gardens: their cry resembles the braying of an ass. They are so gentle and peaceable, that they neither quarrel among themselves, or with other animals. If they perceive any one on the banks of rivers they frequent, they immediately take to the water; if they are pursued, they dive and continue so long under water, that the hunters are obliged frequently to give up the pursuit. They are brought up in house, fed on bread, millet, and pot-herbs, and are very tame. They are then tender and well tasted food, though in a wild state, like the otter, they are rather bad fish as good flesh. They might certainly be propagated in Europe.

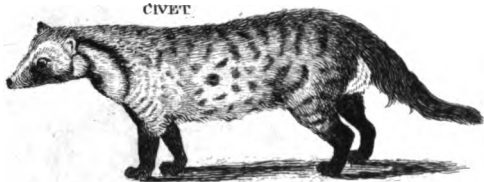
GUINEY PIG (Pl. 38.) or RESTLESS CAVY. The power of multiplying its species is so extraordinary in this little animal, that a single pair will produce a thousand in one year. They breed when two months old, they have young at least every two months, and bring from four to twelve at a time. This prolific tendency however, is counteracted by so many modes of destruction, that the increase in Europe bears no proportion to the promise. Many are killed by the males, numbers are killed by cats, and the least cold or moisture is fatal to all of them. It is with great difficulty that they can be kept sufficiently warm and dry through the winter. When they feel cold, they crowd together in a heap, and it often happens, that in this situation,

Plate XXXVII.

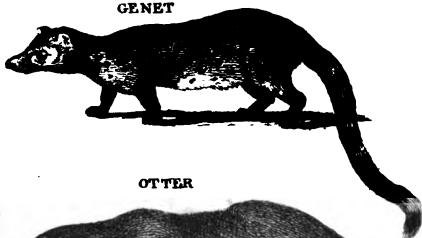
RATEL



CIVET



GENET



OTTER



Canadian

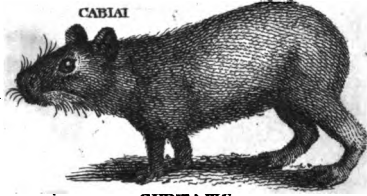


Lefser



Plate XXXVIII.

CABIAI



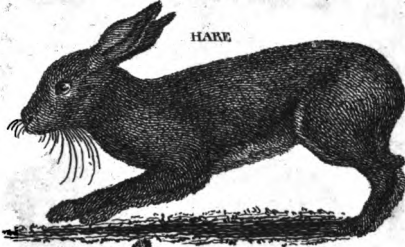
GUINEA FIG



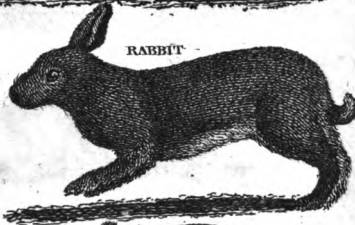
PACA



HARE



RABBIT



DOMESTIC RABBIT



they all perish. Guinea pigs are very susceptible of anger, and fight cruelly with one another. Their sleep is short but frequent. They eat precipitantly, like the rabbit, little at a time, but often. They feed on all kinds of fruit and herbs, but their favourite food is parsley. In Europe they are always in a domestic state, they arrive so soon at maturity, their lives are so short, and so perpetually busied in increasing their numbers, that they have no time to form other affections. Their domestic character therefore, is just what belongs to them in a state of nature. They are inoffensive but weak, they are mild but stupid animals.

SPOTTED CAVY or PACA (Pl. 38.) is peculiar to South America, where its flesh and fat is reckoned such excellent food, that the Count de Buffon, to induce his countrymen to naturalize it in France, has been very particular in his description; from which it appears, that the spotted cavy is larger than a hare; that, in figure, grunting, gait, and manner of eating, it is not unlike a young pig; that it frequents the banks of rivers, where it burrows like a rabbit; that it is remarkably cleanly in its hole, and that it is very easily tamed. In a domestic state it is gentle and tractable; it knows those who feed it, distinguishing their voice, and licking the hand that caresses it. If industriously irritated, however, it will bite cruelly. It even flies upon strangers and children, but it never bites those who are kind to it.

HARE. *Genus 26.* (Pl. 38.) **I**T would appear from its prominent eyes, and its long flexible ears, that nature intended the hare to be constantly on its guard, and to live in a state of terror; and indeed, few animals have a greater number of enemies. They are the prey of the fox, the wolf, and of every rapacious quadruped. They produce an offspring for the owl, the buzzard, and the eagle; they inhabit every region, and every where have new enemies; they are every where prolific, but seldom attain the natural period of their lives. Without ingenuity to protect their young, they are neither hidden in the ground, or in the crevices of the rock. Without

arms or courage to defend themselves, the parent hares are unable to repel their feeblest foes. Their timidity suggests to them, that their safety is in flight. It occasionally, however, suggests recourses above the ordinary effort of their instinct. A hare has been known to start from his seat at the distant sound of the hunting horn, run to a pool, and swim to a bed of rushes in the middle of it, and lie down to avoid being chased by dogs. A hare, after running two hours before dogs, will push another from his seat and take possession of it. After a chase, a hare will leap into a sheep-fold and lie down among them, or he will run in among a flock of sheep and go along with them. Hares, from the shortness of their fore-legs, run awkwardly down hills; therefore, when pursued, they always take the ascent; they run along with the wind, and frequently return on their steps. Though the hare is timid and defenceless, is doomed to perpetual dangers in the field, he is not satisfied with the security of a domestic life. When taken young, he is easily tamed, he is gentle and caressing, but he takes the first opportunity of flying off and regaining his liberty. Hares never go far from the place of their birth. When the young separate from their mother, they make a form or seat at the distance of sixty or eighty paces. When hunted, they never remove to a great distance, and always return to their seat. Whatever number of hares may be in the neighbourhood, every one has a seat where it sits in solitude and silence. They sleep most part of the day, at night they have something like fellowship, and leap, gambol, and chase one another by moon-light, but the most accidental noise will alarm and separate them in an instant. Hares feed on herbs, leaves, and grain; they eat the bark of all young trees, excepting that of the alder and lime, and are fond of birch, parsley, and pinks. They acquire their growth in one year, and live seven. The female goes with young thirty days, and brings three or four at a time. The body of the hare is of a tawny colour above, and white beneath, the tail is black above, the throat and breast are red; the fur is of great use in the manufacture of hats.

QUADRUPEDS.

69

RABBIT, (Pl. 38.). Though Nature seems to make no account of the lives of animals, it universally impresses a sentiment of abhorrence at cruelty. Unnecessarily to prolong misery is the circumstance that renders destruction terrible. Thousands falling in the field of battle create a slighter sentiment of alarm than is occasioned by the individual who groans under the lash of cruelty. It is because we can separate destruction from criminality, that the carcases of animals daily presented on our tables do not strike us with horror and affright. To reason otherwise, is to overturn the whole system of animated nature. The most numerous species of animals seem only to exist that they may be sacrificed to the necessity of others. This is exemplified particularly in animals of this genus. We have seen that hares are preyed upon by almost all the rapacious quadrupeds and birds; rabbits, as they are weaker animals, have, perhaps, more enemies. They indeed take shelter in the ground where they rear their young, and are there protected from the attacks of the fox, the wolf, and the larger quadrupeds and birds. But while they are guarded from these enemies without, they are more securely victims of the whole tribe of weasels. These enter their holes, from these they can make no retreat, and a dreadful slaughter ensues. Such as escape, are sent abroad to be devoured in the fields. The ferociousness and number of their enemies is such, that were they not exceedingly prolific, they had been long ago extinct. On the other hand, were they to multiply without interruption, the produce of the earth would be insufficient for their support. Rabbits go with young thirty days, and produce from six to ten at a litter. Could we suppose, that they brought eight young ones seven times a-year for four years successively, a single pair would produce the amazing number of 1,274,840. Rabbits live eight or nine years; they pair; and are said never to be unfaithful to their choice. The female suckles and conceals her young from the male in a cell previously made and lined with a quantity of her hair for more than six weeks. When he sees them for the first time at the mouth of the hole, he seems to know who they are. He caresses them, and

one after another, smooths their hair with his paws, and licks them with his tongue. From this time, they are in no danger, but had he discovered their early retreat, he would have killed them. The colour of the rabbit is brown, but in a domestic state the colour varies from black to pied and perfectly white.

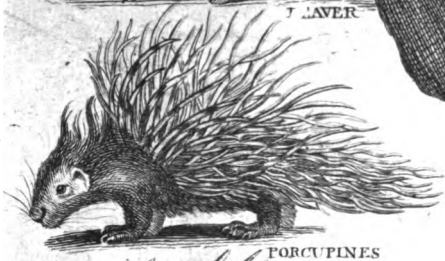
BEAVER. *Genus 27.* **WHERE** Nature distinctly (Pl. 39.) operates, we are impelled to worship. Whether it be sunshine or storm, the symptoms of desolating winter or of renovating spring, whether it be the efforts of imagination or of instinct, every thing refers to the same superior guidance, and in proportion as this is apparent, we admire. The history of the beaver affords a singular instance of the operations of instinct. When a great work is to be effected, the beavers, to the amount of two or three hundred, assemble in June or July. They come from every corner, and meet nearly at the same time and in the same place, which is always near waters, and generally by the side of a rivulet. Here they work and begin to build a bank across the stream, that they may collect the water into a pond, which shall remain always level. They cut down such a tree as will fall into the water, this is often thicker than a man's body, it is cut through with their teeth in a very short time, and is so managed, that it falls across the stream transversely. They then lop off the branches and make use of it to assist their farther operations. Smaller trees, from the thickness of a man's leg to his thigh, are now cut down and dressed into stakes. These they drag to the stream and transport by water to their dam. They manage to elevate them and sink them in the ground. They are disposed in several rows, which are wattled together with pliant twigs, and the interstices filled with earth and clay beaten firm with their tails. This dam-dyke is from eighty to a hundred feet long. At the bottom, it is ten or twelve feet thick, it is perpendicular on the lower side, but slopes on the side next the water, so that the top is reduced to two or three feet. In the top also are constructed holes for the escape of the surface water. Having collected a pool, they now set about building hou-

ses and erecting a village. Their houses are built within the margin of the pool, and have two doors, that they may have access equally with the land and water. They are erected on strong piles, and rise from three or four, to eight or ten feet above the water; they are of a round or oval shape; they are arched, and form a dome at the top, and the whole is neatly plaistered without and within. From one to ten or twelve pair inhabit a cabin, and these are always in proportion; they have proportionally strong walls, and they sometimes have three or four stories. A village sometimes contains twenty-five cabins, though generally it is composed of ten or twelve. Every cabin has a spot belonging to it in the water for winter provisions, which consists of bark and the branches of trees, and is common to every individual of a family, but is never encroached upon by those of another. Such is the society of beavers, an exhibition of intellect that confuses the definitions of reason and instinct. Nothing is more admirable than their industry, but the union that directs it. While some gnawing, cut round the tree as neat as a woodcutter, others roll it along to the water. While some dive and scrape holes with their feet, others support the beams and push them home. While some bring twigs, others collect stones and clay. While some beat and temper mortar, others carry it off on their flat tails, and beat it between the piles, or plaister their houses. But while every one does all that his fellows can expect for the completion of the grand work, when this effected, they have done their utmost. Society, which advances man in knowledge and in arts, makes no improvement on them. They were perfected by nature for their work, their first efforts were complete, and in the society that they form, they are, in point of intellect, merely stationary. Besides these social beavers, there are a solitary kind called Terriers, that live like the badger in holes, and lay up their winter provisions. This is the only kind that are found in Europe. It is only in northern regions that they form societies, and the most northerly beavers have the blackest and finest fur. In the north of Canada, they are of a chestnut brown, and farther south of a light straw

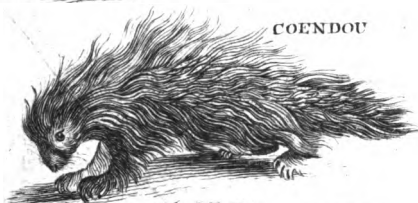
colour. In 1763, the Hudson's Bay Company sold no fewer than 54,670 skins; and in North America, the beaver fur, which is the foundation of the hat manufactory, still occasions a great trade, though it is said the number of beavers is greatly diminished. The fur is best in winter. The beaver swims under the ice, and is caught in nets placed at the mouth of the hole, where he is soon obliged to come for respiration. His flesh is good eating, but owing to the practice of sitting constantly in shallow water, his hinder parts are fishy. His tail is covered with scales. His length, from the nose to the tail, is about three feet, his tail one.

PORCUPINE—*Genus 28.* (Pl. 39.) **SO** many singularities present themselves in the history of animals, that imagination sometimes runs riot, and constantly excited to expect, imputes to extraordinary appearances more extraordinary effects. This has been remarkably the case with many creditable accounts of the porcupine. It has been said, that the quills with which he is so curiously covered, he can throw to a distance, and inflict with them deep and dangerous wounds. It has been also said, that these quills are of such extraordinary structure, that of themselves, they will search their whole length into the flesh, if only their points are entered. But the one account is no more authentic than the other. The body of the porcupine is covered with quills in the hinder part, nine inches long. These he has the power of erecting. When an enemy approaches, he reclines on one side, rises up fiercely, and gores him with the erected prickles. As the strongest prickles are most easily detached from the skin, they have undoubtedly been often seen in the bodies of animals; and this perhaps, accounts for the marvellous relation, that was universally credited from the time of Pliny to Buffon. The porcupine is about two feet long, the quills which are expressly feathers without the vanes, are varied with black and white, the head is covered with bristles, ending in soft hair. It is a native of the warmest parts of Africa, but will live in temperate countries. The fi-

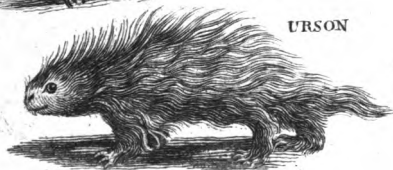
Plate XXXIX



PORCUPINES



COENDOU



URSON

Plate XL



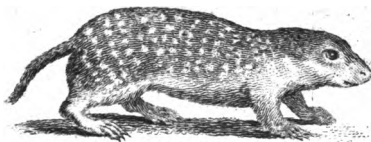
ALPINE MARMOT



CANADA MARMOT



CAPE MARMOT



SOUSLIK



SQUIRREL

gures exhibit the varieties between the Indian and African porcupines.

THE BRAZILIAN PORCUPINE OF COENDOU (Pl. 29) is a native of South America, and lives chiefly in trees. It climbs slowly, and descends by the assistance of its tail, which is prehensile, like the American monkey. It is covered with spines which are three inches long on the back, but are shorter and weaker as they approach the belly. Its flesh is of an excellent quality; it grows very fat and may be tamed.

THE CANADIAN PORCUPINE OF URSON (Pl. 39.) is covered with sharp strong quills, about three inches long, mixed with still longer stiff straggling hair. When this animal cannot avoid its pursuer, it comes sideling forward, seemingly trusting to its quills for a defence, but these are so slightly fixed to the skin, that they come away with the hand that strokes down its back. It is exactly of the form of a badger, but only half the size.

MARMOT.—*Genus 29.* (Pl. 40.) **M**ARMOTS feed on insects, roots, and vegetables. They inhabit the highest regions of the Alps and Pyrenees; and, even on these inhospitable heights, they run little risk of scarcity, who require only to be fed for the summer months. In Autumn, they are so fat, that presaging a deep and long repose, without laying up provisions for the winter, they retire and fortify themselves in their holes, by stopping up the entrances. Here they remain in a state of torpor till the beginning of April, and come abroad completely emaciated. Their holes, which have two entrances, are large and capacious enough to contain several marmots without corrupting the air, they are well lined with moss and hay, and are executed by an union of labour. The hunters never dig for marmots in soft weather, as in that case, they awaken and dig deeper; but, in hard frosts, they are discovered rolled up like balls, covered with hay, and may be carried off and killed without exhibiting a symptom of pain; they will, however, when brought before a fire, gradually revive. Mar-

G

mots live in society from five to twelve in a chamber, and never come abroad but in fine weather ; and, while they sport upon the grass, or gather it for their beds, one of their number stands centinel to intimate the approach of danger. If he discover a man, a dog, an eagle, &c. with a piercingly loud whistle he sounds the alarm, but is himself the last to enter the hole. The marmot is easily tamed. He has an antipathy at dogs, but does not bite except when he is provoked. He walks easily on his hind legs, and often sits on end, and he lifts his food with his fore-feet. Above, the body is of a brownish ash-colour, the legs and belly reddish. From the nose to the tail is about sixteen inches.

CANADA MARMOT (Pl. 40.) has been called in Canada the whistler, from its loud whistle at the entrance of its hole. It is larger than a rabbit. It has a valuable fur, but its flesh is not good.

CAPE MARMOT (Pl. 30.) is called at the Cape of Good Hope, the rock badger, merely because it burrows among rocks. It is about the size of a rabbit, and has beautiful eyes. It has a short, sharp, and piercing cry.

CASON MARMOT or **SOUSLIK** (Pl. 40.) is about the size of a large rat, and has a very beautiful fur. It is remarkably fond of salt. Soussliks are very numerous in Casan, and the provinces watered by the Wolga, and they are taken in great numbers in the salt barks with which the Wolga is covered. They burrow on the sides of mountains.

SQUIRREL. *Genus 30.* (Pl. 40.) **THE SQUIRREL** does not remain in brush-wood, but lives in the tallest trees : It runs up with perfect ease, and flits from branch to branch as lightly as a bird. Its nest is built in the fork of branches with small sticks, neatly and firmly interwoven with moss. It is covered in, conically, that the rain may run off on all sides. It has two entrances, but it stops up that one which is exposed to the wind. In its nest it is easily alarmed from the bottom of the tree, and the least

stroke upon the trunk will make it fly to another tree for shelter; this, however, does not happen when it has young, for then it not only remains at home, but cruelly bites the hand that would rashly seize its offspring. It collects provisions for the winter, nuts, acorns, &c. and hoards them in the trunks of old trees. The squirrel is a lively little animal, and has a fine large eye. It is neatly formed, and all its movements are light. Its tail, covered with long hair, hangs gracefully over its back, and nods, like a plume of feathers, to the little leaps that constitute its walk. It sits up to eat, and uses its fore feet as hands. Its voice is shrill and piercing, and often heard from the woods amidst numbers that frolick and pursue one another on a fine summer evening. It is docile and inoffensive. It is cleanly and has no bad smell. Pencils are made of the hair of the tail. It is all over of a bright reddish brown, except the breast and belly, which are white. It is found in most parts of Europe, and the temperate parts of Asia.

GREY SQUIRRELS (Pl. 41.) are numerous in North America. Prodigious multitudes descend, like a pestilence, from the mountains, and joining those of the low countries, do incredible damage among the plantations of maize, by running up the stalks and devouring the young ears. Such have been their devastations, that the provinces have proscribed them, and offered a reward of threepence per head for every one killed, and in Pensylvania alone, L. 8000 in rewards was paid in one year. They are about the size of a half grown rabbit, and are of a dull grey colour mixed with black. They form holes in the ground, where they deposit a large stock of winter provisions, which, however, is often plundered by the hogs. They are easily tamed, their flesh is delicate, and they have a valuable fur.

The PALM SQUIRREL (Pl. 41.) has an obscure stripe of pale yellow on the middle of the back, another on each side, and a third on each side of the belly; the rest of the body is dark red. It has its name from living in palm-trees.

BARBARY SQUIRREL (Pl. 41.) has two white stripes on the sides, the belly is white, the general colour is cinereous red.

SAILING SQUIRREL (Pl. 42.) or **Great Flying Squirrel**. This animal rather skims than sails or flies. It has nothing to assist it on the water, and it cannot mount into the air. The skin of its sides and belly is extended into a membrane that connects the fore and hind feet. When the feet are stretched out, it thus acquires a sort of sail or wing on each side, but it does not use them like the wings of a bird to beat the air; but like a bird descending, it stretches them out, and its motion is always downward. When it leaps from high trees, it expands itself, and in this manner will skim to trees at a very considerable distance. It sits on end, and uses its fore-paws to feed itself. It is of a bright bay colour, in some parts inclining to orange. It is generally eighteen inches long. It inhabits Java and the Indian islands.

FLYING SQUIRREL (Pl. 42.) is much less than the common squirrel. It flits from tree to tree like the great squirrel, straight forward, and sinks considerably in its flight. Sensible of this, it mounts always to a height proportioned to the distance that it wishes to reach. Numbers, when they leap at a time, resemble leaves blown from the tree by a current of wind. They sleep during the day. They are easily tamed. They inhabit North America.

DORMOUSE.—*Genus 31.* **STRIPPED DORMOUSE** or **Ground Squirrel** (Pl. 43.)

So frail is existence, that there is no instance of animals who live beyond a day, who begin and end life without the assistance of sleep. Some require comparatively little, others much. But if to sleep be to obtain that relaxation which the exhausted system requires to restore it to activity, it is certainly improper to apply it to the long confinements of dormice. They do not require a whole winter to recover the enjoyment of a summer. They were in perfect health, and had continued so, but

Plate XLI.

GREY SQUIRREL.



PALM SQUIRREL.



BARBABY SQ.



COQUALLIN.

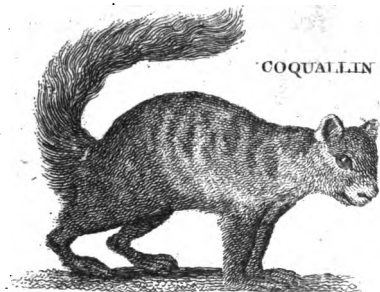


Plate XLII.

GREAT FLYING
SQUIRREL



FLYING SQUIRRELS



their blood is cold, and requires warmth to make it flow. Cold chills them, and then in frost they become torpid or benumbed, and in hard winters they are often frozen to death. On the other hand, if they are kept warm, they are never benumbed, and even in their natural state in the midst of winter if there be mild weather, they awaken and come abroad for food, or replenish themselves with what they have laid up in store. The striped dormouse is numerous in North America, it forms its retreat in the ground, in the fashion of a large gallery, with an apartment on every side. In these apartments, they deposit their winter provisions; in one, they lodge acorns, in another, maize, in a third, hickory nuts, and in the last, chinquapin chestnuts, which is their favourite food. They are very destructive in the fields. They have cheek pouches, and though these are full of rye, they readily throw it all away if they fall in with wheat, or any thing they prefer. The colour of the striped dormouse is a reddish brown, the ridge of the back is marked with a pale yellow stripe, bounded above and below with a black line.

The FAT DORMOUSE is about the size, and has very much of the manners and disposition of the common squirrel, though it is not like the common squirrel easily tamed. These animals were considered as a great delicacy by the Romans, who constructed places to feed them in. In Italy, where they are still eaten, they are caught by digging pits in dry places, and under rocks in the woods. These are strewed with straw, moss, and beech-mast, which allure the dormice to feed and repose there; and, at the end of Autumn, they are found torpid, and in the best condition for eating. They are ash-coloured, and inhabit France and the south of Europe.

The GARDEN DORMOUSE is about the size of a rat, and like it has a strong and offensive smell. Its colour is tawny. It is found in all the temperate climates of Europe. It infests gardens, and is very destructive to all kinds of fruit, running up the trees and espaliers, it devours the pear, the apricot, the plumb, and particu-

larly the peach. It nestles in the holes of walls, or in the hollows of old trees. Garden dormice lay up a store of nuts and filberts, and it often happens, that eight or ten of them are found, rolled up and benumbed in the midst of their provisions.

COMMON DORMOUSE is about the size of a mouse. It makes its nest among the branches of brush-wood. It is composed of moss and leaves. It is about six inches in diameter, and open above, and contains three or four young. When they leave the nest, they harbour among the hollows or among the roots of old trees, where they amass provisions of nuts and dry fruits; and here, at the end of Autumn, they retire and roll themselves up, and remain torpid during the winter. They are of a tawny red colour, the throat is white.

JERBOA. *Genus 32.* **A** CERTAIN prince in Sicily was at a great expence in procuring statues of the most monstrous figures to enrich his house and gardens. To the head of a man he joined the body of a goose, and to the body of a lizard, joined the head of a lion, &c. To give method to his madness, such a one might quote the conduct of nature in many strange productions. Nature even produces monsters, but they are accidental; and she takes no pleasure to preserve them in a race. Those tribes of animals that are composed of parts seemingly peculiar to other animals, have still their conformities useful to themselves; and, they display an extensive plan, which, in a wide view of creation, would not be exhibited by a greater symmetry of form. The fins of the waldrus give to a fish some of the properties of a quadruped; the tail of the beaver confers upon him some of the properties of a fish; the wings of the bat are not like those of a bird, but they enable it to flutter through the air; and the Jerboa, (Pl. 43.); with the head of a rabbit, hops with great dexterity on a bird's legs. This curious little animal, about seven inches long in the body, runs very fast; when pursued, it jumps five or six feet high, and so amazingly swift, that the eye cannot perceive its feet when it springs from the ground. It stands on its hind-feet; and its fore-feet,

Plate XLIII

GROUND SQUIRREL



FAT SQUIRREL



DORMOUSE



GARDEN SQUIRREL



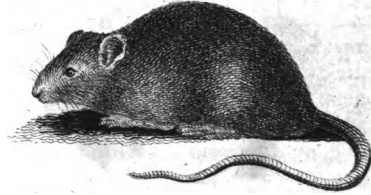
JERBOA



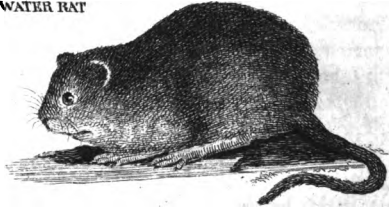
RAT.



BROWN RAT



WATER RAT



LONG TAILED FIELD MOUSE



MADAGASCAR RAT



DWARF MOUSE

HOUSE



which are very strong, perform the office of hands. It burrows like a rabbit, it keeps close during the day, sleeps rolled up, and comes abroad lively and active at night. It feeds on vegetables. It is of a tawny colour, and is found in Barbary and Egypt.

RAT.—*Genus 33.* **I**F the RAT (Pl. 44.) were large and strong in proportion to its ferocity, no animal were more formidable. It is an enemy to every living creature; and it wages war with its own species. In its turn it is opposed and made the prey of many enemies; but in spite of the ravages of the cat and the weasel, the snares, and the poison of men, though the number of rats is in some places lessened, they are still very numerous, and they permit not the vigilance of the housewife or storekeeper to slumber. They are very destructive in barns and granaries of corn. In the dwelling-house, nothing is exempted from destruction; they gnaw linen-cloth and furniture; they lodge in the ceiling and panelling of the walls, where they drag every thing they can destroy, and form magazines for their young. They breed often in a year, and have six or seven at a time. When the young ones venture abroad, the mother watches them and defends them from the cat. With the instinctive courage that nature almost universally has imparted to a mother, she hazards a most unequal combat, and furiously maintains it, that her offspring may escape. The rat is not otherwise courageous; it fights the weasel, who attacks it in its hole; but this, too, is the combat of despair, for though the weasel is the smallest animal, he is always victorious. This is owing to the structure of their jaws. The rat tears furiously with his foreteeth, and continues to inflict new wounds; but the weasel bites with his whole jaw; he rivets his teeth where he bits; he sucks the blood, and cannot be disengaged from his hold, till the death of the victim has completed his conquest. When provisions grow scarce, rats devour one another. The strong kill the weak; they open their heads and eat the brain, and afterwards the rest of the body; and this daily massacre is continued till by themselves they are nearly exterminated. This is a shocking scene; and yet it is but a pic-

ture in small, and simply exhibits the wrecks of conflicting nations among men, who very seldom can plead for their devastations, the pressing apology of rats. This cannibal conflict among the rats, accounts for their sudden disappearance from places where their numbers baffled every art to subdue them, and where their depredations drove the possessor from his habitation. They were transported to South America by the Europeans in 1544, and they are now the pest of all that continent. They swarm in the islands of the Indian ocean; and at Otaheite they will attack the inhabitants when they are asleep; who hold them in such abhorrence, that they will not even kill them lest they be polluted by their touch. They are of a deep iron grey colour, seven inches long, the tail near eight.

THE BROWN RAT. As if the Black Rats were not sufficiently disagreeable neighbours, the Brown Rats made their appearance in Europe, for the first time, about the beginning of the 18th century. They are larger, stronger, bolder and more prolific than the Black Rat. Of a reddish brown colour, the body is nine inches long, the tail the same; when pursued, they will turn and bite the hand or stick that assails them. They produce from twelve to eighteen at a time. They burrow, like the water rat, in the sides of ponds and ditches. They swim and dive well, and take the water readily. They live on fruit and grain, but eat young hares and partridges. When they quit the fields in winter, they enter the hen-house, and, like the polecat, kill all the young birds; among straw and grain they do infinite mischief by chopping much more than they devour. Neither common rats nor mice exist in their neighbourhood; but they themselves may be destroyed by ferrets, who attack them in their holes as furiously as they do the rabbit. They swarm in Petersburg and Prussia. It is thought, that they were brought from India, where it is said, that they so undermine the foundation of houses, that they frequently fall.

THE WATER RAT neither enters the house nor the barn, but takes up its abode on the margin of pools and

ditches, and feeds on small fish and fry, frogs and insects. Its toes are not connected by membranes, yet it swims admirably, and keeps long under water. Its colour is black, it has a thick blunt nose, and is about the size of the common rat. The peasants of France, during the time of lent, used to eat the water rat and the otter.

The **MADAGASCAR RAT** is said to live in palm trees like the squirrel; like it, is active, erects its tail, and carries its food to its mouth with its fore-feet.

The long tailed **FIELD MOUSE** is only found in fields or gardens. They do much mischief in the country, where they have been known to dig up the new sown acorns, and not leave a single seed; they are, however, easily killed with flat stones, slightly supported by a stick, and baited with roasted walnuts, which they are very fond of. They form their nests in the ground, not far from the surface, and amass great quantities of acorns, beech-mast and grain, for the winter. The body is of a yellowish colour, and about four inches long.

Short tailed **FIELD MOUSE** does great damage in fields of corn, where it cuts the stalk, that it may come to the ears. It burrows in the ground, and lays up store for the winter.

The **MOUSE** (Pl. 44.) is a neat little lively animal, but is an object of antipathy to many; this must be occasioned by the mischief it does, and by its being domestic without being familiar. There is no debarring it from the cupboard, and its appearance is always sudden. Its motion is a race and a stop. It is easily frightened; before it be well seen, it is out of sight. Constantly expressing alarm itself, it communicates alarm to others. Its own terror is indeed well-founded, for it has many enemies. It is persecuted by trapes, poison, and cats within doors, and in the fields, it is seized by owls and other birds of prey; by weasels, and even by rats. They multiply prodigiously, and are found in every quarter of the world. The dun colour of the Mouse is frequently

changed to white, its full bright eye has then a fine effect ; and it is altogether a pretty little creature.

SHREW MOUSE.—*Genus 34.* **A** General view of quadrupeds, from the elephant to the mouse, leaves an impression on the mind, similar to what is produced by a range of hills from the rocky mountains, that hide their heads among the clouds, to those which graduate their swelling heights till they join the lesser knolls that connect them with the fields. The gradation of objects and of animals is not formally regular ; but the chasms and singular appearances that present themselves, are not occasioned by what is disjointed or unconnected, but by looking around us from confined and improper stations. Every thing refers to a plan which Nature seems to have assigned to herself in the work of creation. Every thing has its appropriated place ; and we have reason to suspect our own narrow views, rather than believe, that the most diminutive, or most insignificant object, does not fill a sacred and important place. The SHREW MOUSE, (Pl. 45.) is among the smallest of quadrupeds, and occupies a station between the rat and the mole. It is less than the mouse, but not so agile. It has the long snout of the mole, but its eyes, though small, are larger. It frequents haylofts, stables and dunghills, and feeds on corn, insects and putrid flesh. It has so disagreeable a smell, that though the cats kill, they do not eat, it. It is of a brown colour, and is common over all Europe.

MOLE.—*Genus 35.* **T**HE eyes of the MOLE (Pl. 45) are so small, and so deeply hid in its fur, that it is not wonderful it has been reported to be blind. It is doubtful whether its eyes could be of much use in a rocky situation, where it could not burrow deep, and were frequently obliged to come abroad for food ; but residing, as it constantly does, under the ground, and furnished with a strong sense of smell, to enable it to seek for roots and reptiles, the Mole, at least with us, entirely relinquishes the benefits of vision. It has, however, in its retreat, the entrance to which is always shut, a security beyond that of other ani-

mals. Effectually defended against the attack of every quadruped and bird of prey, it has no enemies but the persecuting ingenuity of man, and accidents that result from its own instinct; for it delights in the soft earth of meadows and low grounds, which abound with excellent roots, with insects, and with worms; but in these situations, so subject to be overflowed by inundations, vast numbers of them are destroyed. Indeed, Moles multiply so fast, that, were their numbers not constantly reduced, they would perhaps do more mischief below ground, by destroying the roots of plants, than is effected above by all the ravages of quadrupeds and birds. The nest in which they deposit their young is of a curious structure, and is erected in the largest of those hillocks we see in the fields. The hillock forms an arch in the inside, firmly bound with roots, and supported with pillars; below this arch is erected another hillock, upon the top of which the nest is constructed of herbs and leaves, and fitted to contain five or six young. It is above the surface of the ground, and cannot be affected by ordinary inundations. The internal hillock is perforated with holes, which go in all directions into the earth, and then again to the surface. Through these holes, the old ones seek for nourishment to their young, or carry them off on the least approach of danger. The Mole is usually black, and covered with hair closer and softer than the finest velvet. Its skin is so tough, that it can hardly be cut, and the forepart of its body is remarkably strong and muscular.

HEDGE-HOG.—Genus 36. **T**HE HEDGE-HOG is so completely covered with strong short spines, that when it rolls itself together, it very nearly forms an entire ball of prickles, and is completely defended from the attack of the weasel, the polecat, or the dog. The fox, however, by wounding its feet, obliges it to unfold, that it may not be choked with blood, when its destruction is easily effected. It has no other mode of defence than thus to form itself into a ball; it does not fly nor resist an attack, either with its feet or teeth; but no force will make it expand; the more it is harassed, the closer it rolls up, and the only way to succeed, is to plunge it in water. It eats little,

and can remain a long time without food. It sleeps throughout the winter. It resides generally in small thickets and in hedges. It feeds during the night, and lives on roots, fruits and insects.

The **TENRAC** or **ASIATIC HEDGE-HOG**, has spines only on the head, neck and shoulders, the rest of the body is covered with yellowish bristles. It grunts and wallows in the mire, and lives upon water more than upon land. It burrows in the ground, and lies torpid in winter.

DIV. II. SECT. IV. *Digitated Quadrupeds with two Cutting Teeth.*

SLOTH.—*Genus 37.* **THOUGH** it be generally true, that all animals are furnished with some mode of defending themselves against the attack of enemies; and where strength or swiftness is wanting, extraordinary means are resorted to, as in the hedgehog, the manis, &c. The **SLOTH**, which is eaten and eagerly sought for, both by rapacious animals and men, makes not the smallest resistance; and is so much otherwise exposed by its extraordinary sluggish movements, that it is wonderful the race should subsist. Its strong and stiff legs are furnished with long claws, which barely enable it to climb trees at the rate of twelve feet in the hour. It remains on the tree for several weeks, and does not leave it till it has devoured all the leaves, the fruit, and the twigs. Whether it has not the power of descending, or whether it would take too much time, when the tree is bare, it allows itself to tumble from the top, like an inanimated mass, upon the ground; it then feeds upon what may have fallen from the tree; but before it can reach another, so slowly it stretches out its foot, and so tediously it trails its body on the ground, that days are sometimes consumed in the rout, and it suffers an excess of hunger. Its insensibility, however, is extreme; for it shrinks not from blows, and no whipping can make it increase its pace. It is this want of sensibility that renders it defenceless, rather than the want of arms; for a Sloth that had seized a dog, held him fast with his feet for four days, so that he perished with hunger. It usually hangs from a branch suspended by the

Plate XLV.



SHREW



SHORT TAILED FIELD
MOUSE



MOLE



TENREC



HEDGE HOG



TWO TOED SLOTH

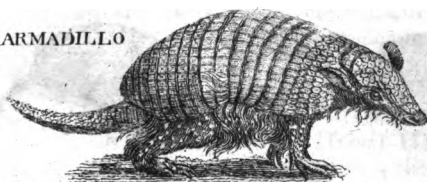


THREE TOED
SLOTHS



Plate XLVI

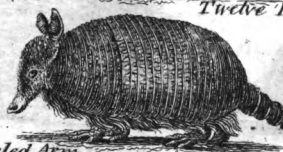
ARMADILLO



Six Banded



Twelve Banded



Long tailed Arm



MANIS *Long & Short tailed*



GREAT ANT-EATER



LEAST ANT EATER

claws. In this situation it both eats and sleeps. The Sloth inhabits South America.

The three-toed SLOTH is covered with uneven long hair, of a cinerious brown colour, grows to the bulk of a middle sized fox.

The two-toed SLOTH is cinerious brown on the back, but sometimes pale red, and has long rough hair. That in the British Museum is supposed to be young, and is only eleven inches long.

ARMIDILLO.—*Genus* 38. **H**AD the armour of the ancient warrior been rated as a copy from the covering of the ARMIDILLO, human invention could have repelled the charge; for this animal was unknown on the old continent. But though the inventive powers of man do not need to borrow from animals, they are yet so limited, that they produce nothing, either of use or ornament, that exceeds what is bestowed on the inferior orders of being. The crustaceous covering of the Armidillo, is a curious piece of defensive armour, which nearly encompasses the head, the body and the tail. The under parts are uncovered; but upon the slightest approach of danger, they are defended by being contracted and hidden within the crust, which assumes the form of a ball. To render this crust flexible, it is divided over the body into bands, connected by strong membranes. These moveable bands, together with the plates which cover the shoulders and the haunches, are again divided into small pieces of various angular shapes, and form a sort of mosaic work, moveable in a certain degree. The animal thus equipped, can walk quickly, though it neither runs, leaps, nor climbs trees. It burrows in the ground as readily as a mole; and so vigorous is its resistance, if caught by the tail, that its tail may be torn away, but its body cannot be dragged out. It is an inoffensive animal. It feeds on fruits and roots, drinks much, grows very fat, and is reckoned delicious eating. The different species are of various sizes, from ten to thirty inches long, and are na-

H

med from the number of bands that encompass the body.

DIV. II. SEC. V. *Digitated Quadrupeds without Teeth.*

MANIS.—*Genus 39.* THE tyger, or other ferocious animal, that unwarily seizes the MANIS, instantly relinquishes his prey, and is not anxious to repeat the attack. It is closely covered with strong and sharp scales, which it can erect at pleasure. It contracts its body in the fashion of a clue, with its head in the centre, its tail being wrapt around it like a belt. In this shape, it presents a more formidable defence than any other animal, being absolutely invulnerable; and not only does it disappoint the appetite of famished and cruel creatures, but it is said to destroy the elephant, by twisting round his trunk, and compressing it with its hard scales. It feeds on insects, particularly on ants, and seizes them by plunging its tongue, which is very long, into their nests, or stretching it out upon places where they pass. It has a very narrow mouth, and no teeth. It is found in the East Indies, and in Africa.

The long-tailed MANIS (Pl. 46.) is about fourteen inches long; the tail about three feet.

The short-tailed MANIS is considerably larger, being above three feet long in the body, and the tail nearly as much. The Manis has been commonly termed the scally lizard, its appearance being more similar to that reptile than to other quadrupeds.

ANT EATER.—*Genus 40.* THE great ANT EATER, (Pl. 46.) has a long slender nose, small eyes, and a slender tongue, two feet and a half long, which lies double in its mouth, and which it plunges into the nest of ants, or into the crevices of trees for wood-lice and other insects. It climbs trees with great facility. It runs but slowly on the ground, but it swims well, and crosses great rivers with its tail flung over its back. Its tail is cover-

ed with coarse black hair, a foot in length; and when trailing on the ground, gives it, at a distance, the appearance of a fox. It is flung over its body when it sleeps, and is also made use of to protect it from the rain and the sun. It subsists a long time without food. It generally sleeps through the day, and preys by night. It has a remarkable thick skin, covered with long bushy hair, and is armed with strong hooked claws. Dogs seem to be aware of these advantages, and are averse to hunt it. It inflicts such dreadful wounds, that even the jaguars and conguars are lucky if they can escape from the combat. At first, it defends itself like a bear with its fore-claws, it then turns on its back, and, with its four feet, fights to the last extremity, but it is often successful, for where it fixes its claws, nothing can disengage them; and it does not extricate itself, even from a dead adversary, for a long time. It is a native of South America. It is about three feet ten inches to the tail, which is two feet and an half long.

The least ANT EATER is covered with woolly hair, long, soft and silky, of a yellowish brown colour. It is about the size of a squirrel. Its claws are remarkably strong, and if it fixes on a pole, it may be carried about at pleasure. It has a prehensile tail, by which it often hangs from the branch of a tree, and thrusts its long worm-like tongue into such rents and hollows as contain ants and other insects, which it quickly retracts, and swallows the insects that have adhered. It inhabits Guinea.

DIV. II. SECT. VI. *Pinnated Quadrupeds.*

WALRUS.—*Genus 41.* **THOUGH** the classification of animals be expedient, there can no line of arrangement be formed, from which there will not be many diverging points. We have hitherto treated of quadrupeds; and we have seen several exceptions from what is understood to be common qualities. A species of squirrel forgoes the common use of its limbs, and trusts itself for a considerable space in the air; the porcupine forgoes the common covering, and for hair

assumes an assemblage of quills; the armidillo has the covering of shell-fish; and the manis is not only covered with long scales, and has the figure of a lizard, but both it and the ant-eater want the general characteristic of teeth, and, like many reptiles, feed on insects by means of a long folding tongue. The WALRUS, (Pl. 47.) almost loses the appearance of the quadruped, for the form and habits of a fish. It grows to an enormous size, being commonly twelve, and sometimes eighteen feet long, and, in the thickest part, ten or twelve in circumference. It has a round head, small fiery eyes, and its large lips are covered with transparent bristles as thick as straws. Its upper jaw is furnished with two great tusks, clearer and more compact in the substance than ivory; one of these has been found to weigh twenty pounds. Its skin is thick, wrinkled, and thinly sprinkled with short brown hair. Its legs are inclosed in the skin, and its feet alone are free; the hind feet, which are large, are thrown out in a line with the body; and though they are each supplied with five palmated toes, terminated with short sharp claws, they answer the purposes of fins better than legs. Although upon land it can only trail its body along, or flounder and fling itself, tail over head, it climbs upon high shores and boards of ice, where it sleeps and delights to bask in the sun, and where it continues for days, till compelled to seek for food in the water. Walruses assemble in herds; and formerly vast numbers were seen on the shores of Spitsbergen, Nova Zembla, and Hudson's Bay, but they have learned to be cautious of the hostility of man, and avoid the places he frequents. They roar loud. They are killed with long lances. When wounded they are very fierce, and care must be taken to keep out of the way of their teeth, which they strike furiously from side to side. They are less audacious on land than in the water, where they have a full command of their motions, and endeavour to overturn boats, by rising under them, or piercing them with their tusks. An ordinary sized Walrus will furnish half a ton of oil.

SEAL.—*Genus 42.* **S**EALS are found twelve feet long in Greenland, and in the South sea; but the common Seal is only five or six feet long. They are very generally diffused, but found in greatest numbers near the arctic circle, and in the southern parts of America. They bear a general resemblance to the walrus, but want the tusks, and are better covered with hair. Seals associate in troops, and are lively and intelligent among themselves, and so far capable of being tamed, that they know the person who commands them; they come when called on, and perform various antic tricks in the water. They are the wealth of the Greenlander; he makes a waistcoat of their skin, their flesh supplies him with excellent food, and with their oil he replenishes his winter's lamp. A Seal will yield eight gallons of oil. The young Seals are white and woolly, and are suckled on rocks, or in caverns, for six or seven weeks, when their mother leads them to the sea, and teaches them to swim and catch fish. They swim with great strength, and are fond of sporting in the water. In summer they sleep on rocks and sand-banks; and when attacked, make a defence with their teeth and feet, which indicates a vigour that would be very formidable were they not deprived of the use of limbs. When they escape, with their hind-feet they fling behind them sand and small stones with great force, and scramble along to the sea. They are of various colours, dusky, brinled, and spotted with white and yellow.

The *Small Seal* (Pl. 47.) has soft smooth hair, longer than that of the common Seal, is of a dusky colour, and generally measure two feet four inches.

MANATI.—*Genus 43.* **T**HOUGH the Manati, by the courtesy of naturalists, is admitted among quadrupeds, it is not more nearly allied to them than to the cetacious fishes. It has two fore-feet, in which it can carry its young, and move about in shallow water; but having neither fingers nor nails, they scarcely deserve another appellation than pectoral fins. The Manati, though it lives perpetually in the water, brouzes the herbage on the shore that is within its reach, and is so gentle, that a person may stroke it

with his hand. There seems to be great affection between the male and female, and they live in families, each consisting of the parents and a half grown young one, and a suckling. They frequent the mouths of great rivers, where they sport in brackish water; but they prefer fresh to salt water, and are numerous in the river of the Amazons, and in the river and lakes of the Oronoko. Manatis are found also near Berring's Straits and the Isle of France. They are frequently perched upon, as they lie in the water, by gulls, who feed on the insects with which their skins, that are thick, black, and furrowed, are infested. They are sometimes twenty-eight feet long, and weigh eight thousand pound. The eyes are extremely small. The auditory passages are no bigger than pin-holes. The head is small for the body, which is twelve feet in circumference near the shoulders, and about twenty at the belly, while it is only four near the tail. The tail is thick, strong, and horizontal. This mass of disproportion is, however, excellent food. It is something like veal, but, whether fresh or pickled, it is preferred either to flesh or fish. The Manatis, in the rivers of Senegal, are commonly five feet long, and seldom exceed eight.

DIV. IV. *Winged Quadrupeds.*

BAT.—*Genus 44.* **T**HE wings of this singular animal, are composed of a thin membrane, which connects its toes, protracted to a great length; and, on this account, though its flutter is very unlike the motion of any of the feathered tribe, it was formerly ranked by naturalists among the birds. It has now a particular division allotted to it among quadrupeds, not only because it is covered with hair, and has a body somewhat like a mouse, but because it has teeth, because it brings forth its young alive, and suckles them, and because it can fold and furl up its wings to answer the purpose of fore-legs, and thus it is enabled with the hind-legs, which are disengaged from the membrane, to walk on all-fours. Some Bats have tails, others are without them. Some are very large, and all of them are hideous and uncouth as the visionary forms that perfe-

Plate XLVII.

WALRUS



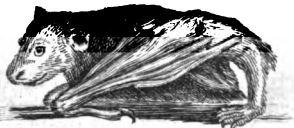
SEALS



YOUNG MANATI



TERNATE BAT



SHREW BAT



HORSE SHOE BATS

LARGE HEADED
BAT



cuted St Anthony in his dream, or compose the horrors of the night mare. To add to their deformity, they shun the light of the day, and only make their appearance in twilight; when, with the most irregular and jirking motions, that now carry them quivering down the over-shadowed loan, now wheel them over head, they give a wildness to the gloom that hangs on the skirts of wood, and make the ruins in the church-yard more than wontedly alarming.

The **TERNATE BAT** or **VAMPIRE**, grows from the size of a pullet to that of a pigeon, and often extends, from tip to tip of the wings above five feet. These monsters inhabit Guinea, Madagascar, and all the islands of the Indian ocean. They do not live in flocks; but it often happens, that such vast numbers take flight at sun-set, that they perfectly obscure the sky. They fly from one neighbouring island to another, and return in clouds from the time it is light to sun-rise. They lodge during the day in hollows of trees, and swarm like bees, hanging together in great clusters. They have a dreadful cry, their smell is rank, they are fierce, bite and make great resistance when taken. They grow at certain times excessively fat, and are eaten by the Indians. They are so fond of blood, that in South America, they destroy vast numbers of large cattle, and the person who sleeps in the open air, with even his feet uncovered, is in danger to pass from a sound sleep into eternity. The Bat is so dexterous a blooder, as to insinuate its tongue into a vein without being perceived, it then sucks the blood till it is fatiated, all the while fanning with its wings, and agitating the air, in those hot climates, in so pleasing a manner, as to cast the sufferer into a still sounder sleep. The Ternate has large canine teeth. The tongue is pointed, terminated by sharp aculeated papillæ. It has no tail, and the membrane is divided quite behind to the rump. Some are of a reddish brown, others dusky.

The **HORSE-SHOE BAT** has its name from an upright membrane on the end of the nose, of the shape of a horse-shoe. They are found in England, where they frequent, during the evening, the saltpetre-houses belonging to the

powder-mills, for the sake of the gnats which swarm there ; and during the winter they are often found in a torpid state clinging to the roof. The length from the nose to the top of the tail, is three inches and an half. It is of a deep cinereous colour on the upper part of the body, and whitish below.

There are twenty-eight species of Bats, four of which are natives of Britain. Bats are very voracious, and live on moths and other nocturnal insects, but frequently find their way into the larder, where they greedily devour flesh, whether raw or roasted. They frequently skim the surface of ponds in quest of gnats. They retire at the end of summer into caves, below the eaves of houses, and into ruined buildings, and hollow trees ; and they remain torpid the whole winter, suspended by the hind-feet, and carefully wrapped up in their membranes. They are the prey of owls ; the voice resembles that of the mouse, but is very low and weak. Bats may be caught by means of the flower-cups of bur-dock whitened and thrown up in the way of their flight. They are attracted by the whiteness, and the hooks of the bur-sticking to their membranous wings, make them fall to the ground.

PLATE I



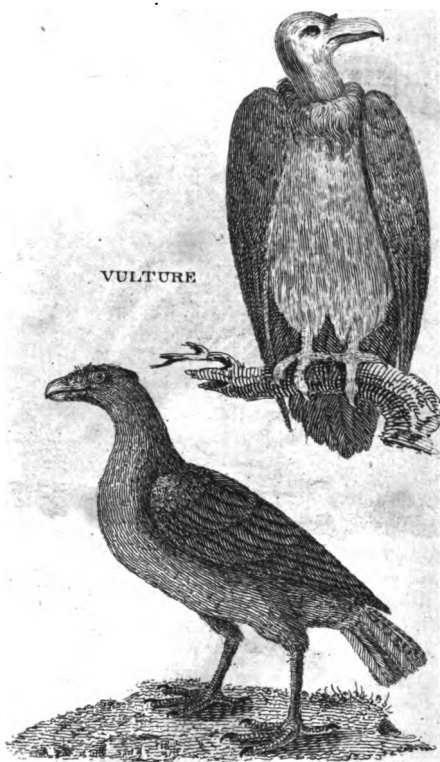
KING OF THE VULTURES



BEARDED VULTURE

Plate II

VULTURE



TAWNY VULTURE



BLACK BACKED EAGLE

NATURAL HISTORY

OF

B I R D S.

ORDER I.

RAPACIOUS BIRDS.

VULTURE—*Genus 1.* **B**IRDS in general are not so useful to man, neither are they so terrible and dangerous as many quadrupeds. There is yet such a similarity of disposition in many of them, that they seem like the same animals in different forms. But however allied by temper and disposition, the structure of birds, when opposed to quadrupeds, is so obviously different, they are dressed in such elegant, and many of them in such gorgeous coverings; they so enchant us with their song, or so incite our appetite for sport, that their history is universally received as an important gratification. The arrangement prescribed by naturalists, has placed the VULTURE at the head of rapacious birds. To this situation his size and strength have exalted him, rather than his generosity or courage. With strength sufficient to exist by the chase, he shrinks from the appearance of danger, and preys only on mice, lizards, and the smaller living animals; but his appetite for putrefactions is so universally known, that the devouring gluttony of the Vulture is proverbial in countries which he does not inhabit. His indiscriminating delight in carion, however, is of the greatest usefulness in warm regions, where the destruction of animals would be attended with the most dreadful effects. In South America, where a vast number of horses and other animals are destroyed merely for their skins, the Vultures,

who follow in the rout, no sooner discover a carcass abandoned by the hunter, than they descend in great flocks from the tops of neighbouring trees, and devour it almost in a moment. The Spaniards and the Portuguese are so sensible that the air is thus preserved pure, which otherwise would soon become corrupted, that, far from being disgusted with their gluttony, they consider the Vultures, for this service, as entitled to their protection. In Brazil also they do great service by destroying the alligator's eggs. Unseen and silent from the trees of the neighbouring forest they watch these hideous reptiles while they deposit their eggs in the sand; the moment they are retired to a convenient distance, the Vultures, encouraging one another with their cries, pour down in crouds upon the nest, distribute the sand with their claws, and devour the whole brood. The aspect of the Vulture is sluggish and heavy. He does not stand erect, he stoops and wavers in his walk, he has such difficulty in raising his body from the ground, that he is repeatedly unsuccessful in his efforts, particularly when gorged with food, and it is said, that he can only escape by vomiting the load that oppresses him. His flight is, however, high and rapid. He smells carion at a great distance. His sight is remarkably acute. Vultures principally inhabit warm regions, and are numerous in Egypt and Arabia.

The KING of the VULTURES, (Pl. 1.) is larger than a turkey; the skin, at the base of the tail stretches out on each side like an indented comb, of an orange colour, and hangs according to the direction of the head. From a small tuft of black down behind the head, a wrinkled piece of skin, brownish, shaded with blue and red, extends beneath the throat. The eyes are of pearly lustre, and surrounded with red. The flatter skin of the head and neck is flesh colour above, and fine scarlet behind, and of a dusky red before. A collar of soft long ash colour feathers surrounds the under part of the neck, and covers the breast. Within this collar it can so completely withdraw its neck, that sometimes it seems to want one. The head and neck of this species is thus particularly described, because, notwithstanding the odd appearance of the parts, the richness of the colours produces a very

beautiful effect. The rest of the body is ash coloured, elegant, marked with black and white.

The VULTURE of the ALPS, (Pl. 2.) while in pursuit of carion, utters cries expressive of the most piercing hunger, yet, like a hideous poltroon, allows himself to be chased and beaten by the crows. The bill and naked skin at its base are black, the head is bright blue, and the neck is covered with white down; the collar is also white.

A most formidable bird of the Vulture kind inhabits Peru, under the name of CONDOR. It is of such enormous size, that it measures eighteen feet between the tips of its wings. It has a naked head and neck like the Vulture, and delights in carion, its flight is rapid, its courage is undaunted, and it preys alone, and also on living animals like the eagle.

FALCON.—*Genus 2.* THE GOLDEN EAGLE, (Pl. 3.) has been compared to the lion, and is among birds what that animal is among quadrupeds. His strength and activity procure him a superiority over all the winged tribes. He trusts not like the vulture in the number of his associates, to overpower the enemy, but singly sallies from his solitary rock, he soars over the mountain, and examines the forest from the clouds, he singles out the fawn, the lamb, or the kid, and only when famishing stoops to carion. He does not gorge himself immoderately, but if the carcass be more than satisfies his own, and the wants of his young, he leaves it to other devourers. His aspect is firm and haughty, and indicates that independence which he owes to a vigorous body completely armed; his hooked claws are like those of the lion, and his hooked beak is a dreadful auxiliary. His flight is rapid, and he mounts higher upon the sky than other birds. It is the *bird of heaven* of the ancients; and in Job *her eyes behold afar off*. The sight of the eagle is exquisite, but his sense of smell is inferior to the vulture. Its hearing is wonderfully acute; the croak of a crow that discovers carion, directs him from a great distance to the very spot. Notwithstanding a vast

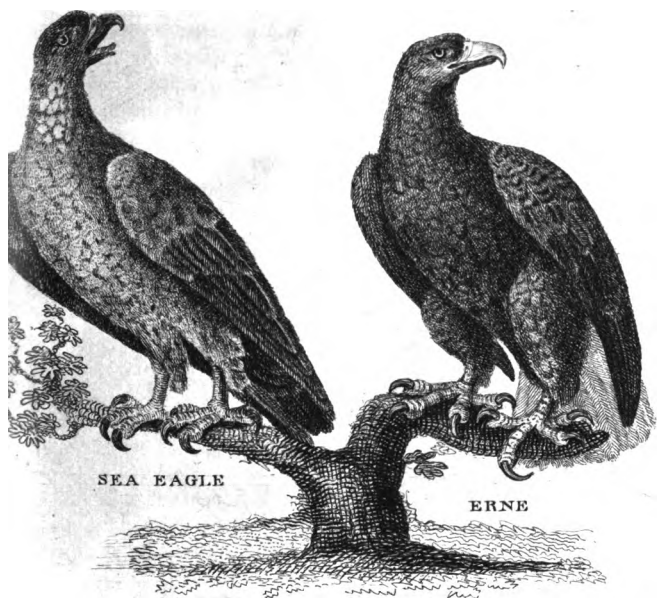
length and strength of wing, his legs are short, and he has great difficulty in rising from the ground with a heavy load. He carries off a hare, a lamb, or a goose, with facility; but he satiates himself with the blood of larger prey, and carries off its limbs to his airy. Though the female lays two or three eggs, it often happens that only one is productive. The airy or nest is built in a dry and inaccessible part of a rock, it is a ~~the~~ scaffolding, built of strong sticks, and covered with reeds and rushes, or heath; it is generally six or seven feet square, and always large enough to contain the young in the middle, surrounded with provisions of lamb, hares, poults, &c. In Kerry, a poor man is said to have subsisted his family, during a scarce summer, with the provisions which the old ones brought to their young; and to protract the period of this supply, he retarded the flight of the eagles by clipping their wings. This appears to have been a very dangerous adventure, had the old eagles surprised him in the theft. Goldsmith relates, that the robbery of an eagle's nest was fatal to a peasant in Ireland. The nest was built on a small island in the beautiful lake of Kilarney, whose surface often reflects the stag on the summit of the mountain, and the Eagle suspended in the sky. The peasant had ~~some~~ way to swim to regain the shore; and while he was yet up to the chin in water, the Eagles, who had returned and missed their young, quickly recognised the plunderer, fell upon him with their beaks and talons, and in spite of his resistance, dispatched him. The Golden Eagle is three feet long, the extent of the wings is above seven feet. It is of a dark brown color, clouded with a still deeper shade of the same. The legs are three inches in circumference, and feathered to the feet.

The SEA EAGLE OR OSPREY (Pl. 3.) is found in Ireland, and in some parts of Great Britain, and feeds principally upon fish, which it catches not by diving, but by darting, and fixing its talons on them as they swim near the surface. In this manner, it will hook salmon; and, in Greenland, young seals out of the water with its claws, each of which being a complete semi circle, are remarkably formed for holding its slippery

Plate III



GOLDEN EAGLE



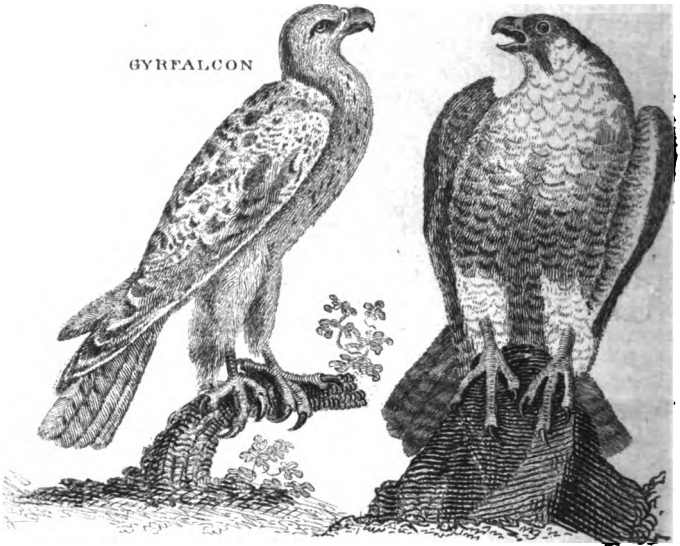
SEA EAGLE

ERNE

Plate IV

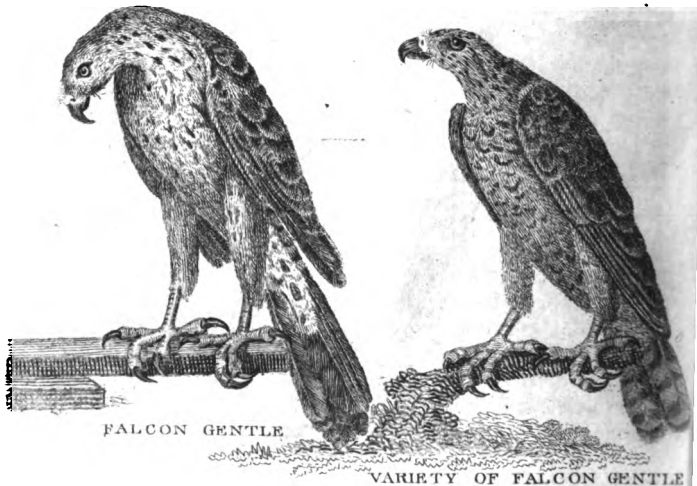
PEREGRINE FALCON

GYRFALCON



FALCON GENTLE

VARIETY OF FALCON GENTLE



prey. It preys also on water fowls and land animals. The thirty-sixth plate of Barlow's collection is this species. An eagle had seized a cat, and soaring in the air with his prize, he met with such a terrible resistance from the tortured and enraged quadruped, that he was fairly brought to the ground. Barlow, who saw the conflict, took up both the animals; and, a circumstance so congenial to his abilities, was too important to be overlooked. The body is a light rusty colour. The extent of the wings is sometimes nine or ten feet.

The **EARNE** (Pl. 3.) is inferior in size to the golden eagle, and flies rather heavily. It is common in Scotland, and inhabits the north of Europe and Iceland. It feeds on fish as well as on land animals. It sits with flagging wings upon the rock, and watches the motions of the diving birds; when one descends into the water, with ardent eyes it traces its course by the bubbles that rise to the surface, and hastens to arrest it. It easily makes off with a young seal; but if it fixes its talons in an old one, it is overmatched and dragged amidst the most hideous outcries to the bottom. The head and neck are of a pale ash-colour, the body and wings cinereous, clouded with brown. The male is darker than the female.

The **BLACK BACKED EAGLE** (Pl. 4.) is very destructive to deer, which it seizes between the horns, and so incessantly beats it with its wings, that the bewildered and harrassed animal speedily becomes its prey. It is remarkable for a white band on the upper part of its tail, the body is of a deep brown.

GER-FALCON. Such is the mutability of customs, that the practice of hawking, formerly so universal, is now as obsolete as the use of ancient armour; but, if the baron is no longer distinguished by a hawk upon his arm and a coat of mail; if he has lost something of his feudal importance, the condition of the poor is ameliorated, the man of rank presides in a more enlightened circle, and society has considerably gained by the change. In England in the reign of Edward III., to

steal a hawk was felony ; and, the person who took its eggs on his own ground, besides paying an arbitrary fine, was imprisoned for a year and a day. The imprisonment was reduced to three months by Elizabeth, but security was exacted for the good behaviour of the offenders for seven years, or to lie in prison till it was procured. The natural history of the hawk has now become rather an object of curiosity than importance. The *Gerfalcon* (Pl. 4.) is the largest of the eagle tribe which is peculiarized by the name of falcon, and stands at the head of the long-winged race, so celebrated for swiftness, courage, and docility. The goshawk, the kite, the buzzard, or those whose wings are shorter than their tails, were also tamed for the field, but remained the property of him who could not purchase a higher breed, or who, from his station, durst not incur the envy of his more lordly neighbours. Gerfalcons are not affected by the size of the heron or the crane. They are the terror of other hawks, and often attack the kite, either to exercise their courage, or to rob him of his prey. They were annually brought from Iceland by the Kings of Denmark ; from Iceland and Norway, they were distributed in vast numbers over all Europe. They were caught in a net suspended from a hoop, about six feet in diameter in this manner : A ptarmigan, a common fowl, or a pigeon, is fastened to a post hard by the net, when the falcon, attracted by the fluttering of the fowl, takes two or three circles in the air before he hazards an attack. If he apprehend no danger, he then descends with the rapidity of lightning, and with such violence, that he strikes off the head as nicely as if it were cut with a hatchet. He again rises and makes another circle, farther to be satisfied of his safety. This done, he descends a second time ; at this instant, a man at the distance of an hundred yards, who by means of two cords, commands both the fowl and the net, drags with one cord the dead bird under the net, and the moment the falcon has seized his prey, with the other cord he fastens the net, and makes the falcon his prize. The gerfalcon is of an elegant form ; the female, as in other hawks, is larger than the male. It has a yellow bill, and is covered with white plumage, marked with dus-

ky lines, spots, and bars, but it is sometimes wholly white.

The PEREGRINE FALCON is about twenty-one inches in length, the breadth four feet three inches. The crown and hind part of the neck is black, the coverts of the wings elegantly barred with deep blue and black, as are also the feathers of the tail. It breeds in Wales, and is common in the north of Scotland, where it is still trained for the chase by a few gentlemen who amuse themselves with fowling.

The GENTIL FALCON inhabits the north of Scotland, and is of a very elegant form. Though the wings are not so long as the tail, it was in high repute in the days of falconry, as a spirited bird. Above, it is brown, and beneath, white tinged with yellow, each feather marked with a dusky spot. The falcon, the falcon gentil, and the haggard, have been described as distinct species, but the several appellations belong to the same bird at different periods of its age; indeed, birds of the hawk kind are so liable to change the colour of their feathers, that the number of their species have been improperly multiplied; the securest marks to attend to, as characteristic of a new species, are the quill feathers, and the tail, which never alter.

The LANNER (Pl. 5.) is little known in Europe. It breeds in Ireland, and was said to be frequent in France. Mr Pennant describes one that was caught while pursuing wild ducks under the nets in a decoy in Lincolnshire. The legs, which were short and strong, and of a bluish cast, are said to characterise the bird.

The GOSHAWK breeds in Scotland and is common in Muscovy and Siberia. It builds its nest in trees. It is very destructive to game, and dashes through the woods after its prey with vast impetuosity; but, if unsuccessful in its first attempts, it desists, and perches on a bough till it discovers new game. M. Buffon kept a male and female for five months in an aviary. They never discovered the least affection, and at last the fe-

male killed the male during the night. This species is still made use of by the Emperor of China, in his sporting excursions when he is attended by his grand falconer with a thousand subordinates, who have each a hawk committed to his charge. The bird has a silver-plate fastened to its foot with the name of the falconer to whom it belongs, that if it should stray, it may be returned to its keeper, or to another officer called the *guardian of lost birds*.

The BUZZARD in England is the most common of the hawk kind. It breeds in large woods, and usually fits up the old nest of a crow for its habitation. Rapacious birds whose food is scarce and always requires exertion to attain it, are generally impatient to get rid of their young, and drive them away as soon as they can fly. The buzzards are an exception, and do not separate from their brood when they leave the nest, but as they feed on mice, frogs, worms, and insects, they have a constant supply of food, and this not only accounts for the indulgence of their affection, but also for their sluggish and inactive lives. The buzzard is seldom in motion; it is found at times near the same place, and is frequently perched on the same bough for the most part of the day. The moor buzzard and hen harrier, are apparently only varieties of this sluggish tribe.

OWL.—*Genus 3.* **R**APACIOUS animals preserve the salubrity of the air by devouring what disease or accident destroy, and prevent the baneful multiplication of living creatures that every where inhabit the earth. That this useful operation may never be suspended, a number of animals are qualified to prey by night. We have remarked this of the cat among quadrupeds; and, among rapacious birds, this circumstance is singularly apparent in the owl. So much are his eyes oppressed with light, that in the pursuit of food, if he be overtaken by the day, he is perplexed in returning to his haunts. His flights are short and low, as if afraid of dashing against unseen objects. If the sun arise he is so completely dazzled, that he can go no farther, but must remain on the spot till the return

Plate V



LANNER



GOSHAWK

BUZZARD



MOOR BUZZARD



Plate VI

HEN HARRIER



LONG EARED
OWL



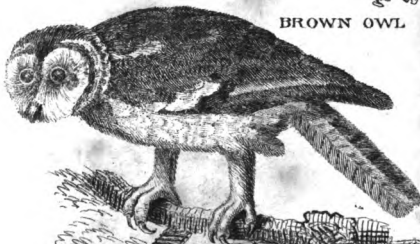
SHORT EARED OWL



EAGLE OWL



BROWN OWL



of evening. In this situation, his ravages among the lesser birds are repaid upon him with insults. The jay, the thrush, the red-breast, &c. perceive his perplexity and harraß him with cries, and with strokes of their wings. The most feeble of his enemies are the most forward to torment him ; their mockeries seem to be excited by his hideous gesticulations ; he gaps, rolls his eyes, and turns about his head in vain efforts to perceive his situation, but if this ridiculous contest be protracted, which often happens, till twilight restores to him the use of his sight, the mistake of his tormentors, so similar to his own, is more fatal to them, who now become the victims of a dreadful revenge. But though little light enables the owl to search for prey, something more seems requisite than the profound gloom of midnight, for by that time he has generally retreated to his hole. In moonshine, which is the harvest of owls, he indulges in a longer flight, and lays up a store of provisions. He shuns the neighbourhood of frequented places, and seeks remote and dreary situations. From the cavern and cliffs of the rocks, and from the shattered walls of an old castle, his frightful cries interrupt the repose of night, and alarm the imagination ; apprehensions uninformed have thus annexed dreadful consequences to his dismal howlings, and the owl has always been considered as an evil omening bird.

The EAGLE OWL (Pl. 6.) bears the light better than other owls, and makes a vigorous defence against the crows when they discover and attack it by day. It is large, but only apparently the size of an eagle, being covered with a large quantity of feathers. Its wings are five feet in extent. On each side of the head are two moveable tufts of feathers which at pleasure lie flat, or are erected and resemble horns, from whence it has been named the great horned owl. The whole body is a reddish brown, finely marked with yellow and black lines and spots.

The LONG-EARED OWL, when attacked by other birds, defends itself with its beak and claws ; for this purpose, when it is assailed by an enemy too powerful, it turns upon its back, and makes a vigorous use of them. It

is seldom at the trouble to build a nest, but takes possession of such as it finds deserted by the pie or the kite. It lays four or five eggs, and the young ones are white. It is found all over Europe, and in many places of America. The extent of the wings is three feet four inches.

The **SHORT-EARED OWL** is a bird of passage. It visits Lincolnshire in October, and in the spring it retires, it is supposed, to Norway. It preys by day in hazy weather, and farmers are fond of seeing them in the fields, which it clears of mice. It is about three feet in length. It is of a brown colour, edged with yellow on the wings, and marked on the breast and belly with narrow strokes of brown.

BROWN OWL. On the back and wings is of a deep brown, spotted with black, and some large white spots. It inhabits woods, and kills numbers of little leverets, as appears by the legs, which are frequently found in their nests. It also kills moles, and skins them with great dexterity. In this it differs from most of the owl and hawk kind, who devour the bones, skin, and feathers of their prey, and regorge them in the form of a rotted ball.

SHRIKE. *Genus 4.* **THE GREAT SHRIKE OR BUTCHER BIRD** (Pl. 7.) affords a remarkable instance of the effect of courage, in acquiring respect, where less intrepid animals, better armed, would be crushed by superior force. The butcher bird is little bigger than a lark; it has a strong hooked beak, but is neither armed with limbs or claws which are formidable; yet it not only defends itself against the attacks of the raven or the hawk, but it even provokes hostility. It intercepts them as they pass, falls upon them with loud cries, cruelly wounds, and beats them off with such fury that they seldom return. If, however, by superior strength, his enemy overpowers him, such is the obstinacy and fury of this little sanguinary bird, that he is never made a prisoner, and the contest is commonly finished by the death of both the combatants. The great

Plate VI

SHRIKE



MACCAW



HORNBILL



Plate VIII

COCKATOO



COCKATOO OF
BOTANY BAY



GUINEA PARROT



GREEN PARROT



shrike builds its nest in tall trees of moss and heath, lined with wool ; the young, from six to eight in number, are fed on insects and are afterwards furnished with morsels of flesh ; the whole family associate together during the winter, and are only separated by the young ones forming families of their own. They kill partridges, young hares, and small birds and nestlings, which they seize by the throat and strangle. The crown of the head and back are ash-coloured, the breast and belly a dirty white. They are birds of passage. They are common in France, and varieties are found over all the world.

ORDER II. PIES.

PARROT. *Genus 5.* **T**HE docility of the Parrot, the beauty of its plumage, and the ease with which it is taught to speak, has procured it general favour. In childhood, we are as much delighted with its efforts as the savage who stops his oars, and beholds for hours the gesticulations of the monkey, or who makes it his most important labour to educate this feathered prattler. We admire that faculty in a bird, which, among ourselves, is the organ of so much instruction and delight ; but speech in the parrot is made use of to express no sentiment of its own, it is a mere imitation of sound, and the phrases it has learned are delivered on all occasions. It has been said, that one was kept by a cardinal, because it devoutly repeated the apostle's creed ; and, that another acted as chaplain to the sailors of a certain vessel, and daily recited prayers to them ; but these anecdotes are retailed as a satire on superficial and hypocritical professors, rather than as proofs of the sagacity of the bird. Parrots are distinguished by having the upper as well as the under mandible moveable. They are thus enabled to receive kernels and nuts of a large size, which they can break with great facility ; their feet are also of singular conformity, two toes being placed before, and two behind ; one of the back toes can occasionally be brought for-

ward ; they climb securely but awkwardly, and use both beak and claws ; they carry their food to their mouth ; they feed on every kind of fruit and grain ; they are said to live fifty or sixty years ; they build in the hollow parts of rotten trees ; the larger kind lay two eggs and breed twice a-year : the smaller kind are supposed to lay a greater number : their flesh is eaten, and the smaller kinds are said to be delicate food. Parrots, though they live in the temperate countries of Europe, are natives of warm climates, and are only productive between the tropics. They inhabit both continents, and have been again subdivided into cockatoos, parrots, and paroquets, peculiar to the old continent ; maccaws, amazons, cricks, popinjays, and paroquets, peculiar to the new continent. These classes differ chiefly in size, growing smaller in the order they are mentioned.

The **COCKATOO** (Pl. 8.) is the largest parrot of the old world, and is more gentle and docile than others of the tribe. It is found in the tropical regions of India, and in all the islands of the Indian ocean. It is distinguished by a crest of feathers on the head, which it can raise or depress at pleasure. There are five species, and French naturalists have named them by the colour of their crests, white, yellow, red, brown, and black.

The **GUINEA PARROT** (Pl. 8,) is all over of a beautiful pearly grey colour, deep on the back, but lighter below and whitening towards the belly ; a red vermilion is the colour of its tail. It is an apt speaker. It listens eagerly to catch sounds, and makes constant efforts to repeat them. It is found in the interior parts of Guinea, and is about thirteen inches long.

The **GREEN PARROT** in the greater part of its plumage is of a light and shining green. The wings and scapular feathers are blue, those upon the sides and below the wings are bright red. It is found in China.

LORY (Pl. 9.) is a family of parrots which acquired its name from frequently repeating that word. Lories are of a scarlet colour, more or less deeply shaded.

The **MACCAW** (Pl. 9.) is the largest American parrot, and is equally elegant in its form, and magnificent in its plumage. Purple, gold, green, and azure, are the splendid colours that enrich his dress, an erect chest, and a length of tail adds gracefulness to the splendor, and his steady and haughty eyes exhibit his own sense of this superior beauty. Maccaws are easily tamed, but no adepts at speaking, and in general this quality in parrots decreases as they are large.

The **PAROQUET** (Pl. 9.) is the smallest kind of parrot both in the old and new continents. Naturalists have described many species, but to make the distinctions obvious, or the detail interesting, the pen of Buffon were inadequate, we behoved to resort to the pencil of Edwards.

TOUCAN. *Genus 6.* **THE YELLOW BREASTED TOUCAN,** (Pl. 9.) If creation were made for the use of man, the snake should be harmless in his bosom, and the proportions of the Toucan should delight him; as this, however, does not happen, man is taught modestly to believe that the scheme of nature is superior to his gratification, and that error is not attached to those productions which to him are singular and odd. There are few birds have a more singular appearance than the Toucan. Its head and beak resemble one of those masks constructed by boys to frighten one another. The beak is so enormous that it is almost the size of the body. But though it is too unwieldy for the common modes of attack or defence, it is peculiarly fitted for defending its nest. It builds in the cavities of trees scooped out by wood-peckers. The entrance is seldom larger than to admit its body, and its beak so completely occupies this aperture, while it broods in the cavity within, that the monkey, the bird, or the serpent, or other invader, that ventures to approach, generally meets with a severe repulse. The Toucan delights in marshy ground, and feeds principally on the fruit of the palm-tree. It is easily tamed. It is found only in America between the tropics. Its feathers are

greatly valued by the Brafilians. The head, upper part of the body, wings, and tail, are black ; the throat is orange, and below that there is a band of red ; the bill is black, with a blueish line on its summit ; and, in this species, it is only five inches long, the head and body nine, and the tail six.

MOTMOT. *Genus 7.*

HORNBILL. *Genus 8.* **T**HE annexed figure of the **HORNBILL** gives a very inadequate notion of this extraordinary family, in which several species are possessed of beaks more enormous than even those of the Toucan. The rhinoceros hornbill, about the size of a raven, has a beak eight inches long, bent down at the top ; above it arises an excrescence of a horny substance which points forward, but toward the top bends back like a horn. They live on carrion, and catch rats and mice, for which purpose they are tamed. They inhabit Ethiopia and the East Indies.

BEEF EATER. *Genus 9.*

ANI. *Genus 10.* **A**NI, (Pl. 10.) The author of the Arabian Night Tales could not have invented a circumstance so foreign to the habits of animals, as the simple one that characterizes the sociable dispositions of the Anis. These birds not only assemble and fly together in little flocks, but, what is altogether peculiar, several of their females lay and hatch together in the same nest. This union would appear, in a cold country, as a strong instinctive impulse to preserve the warmth of the eggs ; but, in the intratropical regions of America, it can only proceed from a companionable disposition, which is apparent on all occasions. The males and females jointly construct the nest, in hedges or shrubberies, and it is made twelve or eighteen inches wide, as the number to be accommodated require. Five or six females generally occupy a nest. Thus, the passion that creates the most deadly feuds in other animals, produces,

Plate IX

BLACK-CAPPED
LORY



LONG TAIL'D
SCARLET LORY



LONG-TAILED GREEN
PAROQUET



BROWN THROATED PAROQ.



TOUCAN

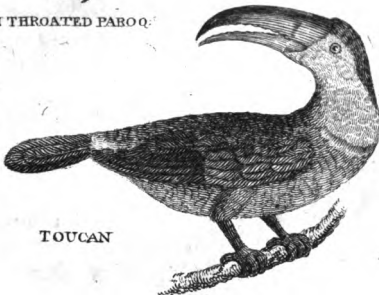
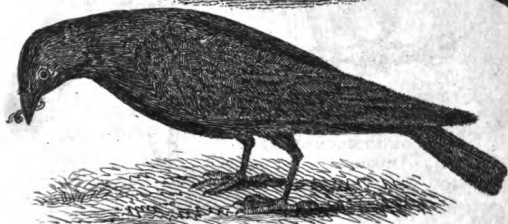


Plate X



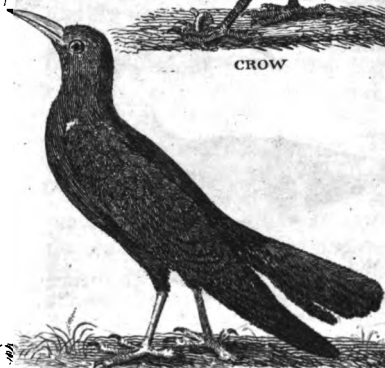
ANI



JACKDAW



CROW



RED LEGGED CROW

among the ani's, the most harmonious cordiality ; but, as they feed on serpents, lizards, and reptiles, which abound in warm regions, their affections are never interrupted by a scarcity of food. The upper mandible of the ani is greatly arched, and is so compressed on the sides that it forms on the top a sharp cutting edge. The body is black, glossed with deep green.

CROW. *Genus 11.* **C**RROWS are the vultures of temperate countries, but where the tendency to putrefaction is less, and a smaller number of reptiles generated than in torrid regions, they feed also freely on grain and fruits. The **RAVEN** (Pl. 11.) kills leverets, ducklings, and chickens. Its scent is remarkably good, and as it frequents the neighbourhood of great towns, where it devours filth and putrid substances, the race is not sought to be extirpated. But though ravens are occasionally useful, they are not esteemed ; and the superstitious of all times have considered them as birds of bad omen. They have an arch look, and are very docile ; but in a domestic state much addicted to thieving. They have been trained to hunt like hawks. They are taught to fetch and carry, to speak, and, it is said, to sing in imitation of the human voice. With us they build in trees, but in Iceland and Greenland they retire into holes in the rocks, when they form nests of roots, twigs, and the bones which they have picked, covering them with moss and hair. They lay five or six eggs of a pale blueish green colour, spotted with brown. When full grown they weigh about three pounds, and are about two feet two inches in length. They are black finely glossed with blue, except the belly which is dusky. The quill feathers are used for tuning harpsichords, and are sold at twelve shillings per hundred.

CARRION CROW (Pl. 11.) resembles the raven in the form of its body, but seldom weighs more than twenty ounces, or exceeds eighteen inches in length ; its gluttony is equally indiscriminating, as it feeds on insects, worms, fish, flesh, and grain. It has always been considered as an ominous bird, and acquainted with future

calamity. Crows were so numerous in England, in the reign of Henry VIII. that, by act of Parliament, every hamlet was obliged to provide crow-nets, for the destruction of crows, choughs, and rooks. They plunder the nests of partridges and other birds; and, it is said, that, by breaking a small hole in one end of their eggs, they carry them on the point of their beaks to their young. They approach the husbandman, or allow the traveller to pass them on the road at a few feet distance, but are so readily alarmed at the appearance of fire-arms, that the sportsman can seldom get within gun-shot. They fly in pairs.

The Rook differs very little in form from the crow, and the black clothing of each is glossed with the same rich purple; but the old rook, by thrusting its bill often in the ground, in search of insects, has the nostrils, chin, and sides of the mouth always bare. Rooks fly and feed in flocks; and, that they may breed in society, they generally chuse a clump of the tallest trees, where they begin to build their nests in March. They show no disposition to plunder among themselves, but one always remains with the nest, while the other is in search of materials. The eggs are of the same colour, with proportionable larger spots than those of the raven and the crow. After the breeding season, rooks retire and roost elsewhere; but have been observed in August to return to their nest-trees, and in October to repair the nests. Rookeries are no where so common as in Britain; and as these birds feed greedily on grain, as well as on insects, they are a greater tax on the husbandman than other crows, they however make ample recompense by extirpating the maggots of the chaferbeetle, so destructive among the roots of corn. The young are skinned, baked in pies, and accounted good eating.

The MAGPIE, (Pl. II.) in shape and manner of living, resembles the crow, but its attire is more rich and elegant. At a distance it appears merely to be black and white, but seen nearer it throws up the most splendid and beautiful hues, that vary with every new situation. Blue, green, purple, are combined with a variety of gol-

den glosses, and at once dazzle and delight. It is common in Britain. Its nest, which is built in trees, is artfully covered in with thorn, a small passage being left for admittance. It is a noisy, restless, and crafty bird; and though, when tamed, it is familiar and taught to speak, it is perpetually thieving and doing mischief. It is about eighteen inches long.

The JAY, (Pl. 11.) completely allies itself to other birds of the Crow kind; it has the same general shape, it feeds in the same manner, and is equally artful and noisy. It is more beautiful than most of the tribe, though its beauty is very different from that of the magpie. The forehead and chin are white, a black spot mark each angle of the mouth, and upon its head a tuft of long feathers forms a crest, which it can erect at pleasure. The neck, back, breast, and belly, are of a faint purple dashed with grey, the exterior webs of the quill-feathers, are partly ash-coloured, and partly black, and are separated in two great spots. The greater covert feathers are most beautifully barred with bright blue, black, and white; the lesser coverts are a bright bay; the rump is white, and the tail is black. With us their nests are generally found in the tops of brushwood. The young accompany the old ones during the winter, and in the spring separate into pairs. They lay five or six eggs of a dull whittish olive, mottled very obscurely with pale brown. The Jay is thirteen inches in length, and weighs six or seven ounces.

The red-legged CROW, (Pl. 10.) except in the legs and bill, which are of a bright orange, inclining to red, is wholly black, beautifully glossed with blue and purple. Like others of this thieving race, it is so fond of abstracting shining substances, that there are instances of its setting fire to houses by running off with bits of lighted sticks, thus becoming the most dangerous incendiary, as well as the most incorrigible thief.

JACKDAWS, (Pl. 10.) like rooks, live in large flocks, and build in ruins, rocks, and in steeples. They are easily tamed, but are notorious thieves. They are

so fond of every thing that glitters, that they steal and hide money and jewels whenever they can get hold of them. They have thus, where they have been kept tame, involved many families in distress, by impoverishing their masters, and by entailing suspicion on servants. Except the hind-part of the head, which is light grey, and the breast and belly, which are dusky, the plumage of the jackdaw is black, glossed slightly with blue.

The following anecdote from Mr Edwards' natural history, is a curious instance of the economy of Nature in the instinct of the crows : The reverend Mr Robinson, rector of Ousby in Westmoreland, says, " That birds are natural planters of all sorts of wood and trees. They disseminate the kernels upon the earth, which, like nurseries, brings them forth till they grow up to their natural strength and perfection." He says, " about twenty-five years ago, coming from Rosecastle early in the morning, I observed a great number of crows very busy at their work, upon a declining ground of a mossy surface : I went out of my way on purpose to view their labour, and found they were planting a grove of oaks. The manner of their planting was thus : they first made little holes in the earth with their bills, going about and about till the hole was deep enough, and then they dropped in the acorn, and covered it with earth and moss. The season was at the latter end of autumn, when all seeds are full ripe." Mr Robinson seems to think, that Providence had given the crows this instinct, solely for the propagation of trees ; but I imagine it was given them principally for their own preservation, by hiding provision in time of plenty, in order to supply them in a time of scarcity ; for it is observed in tame pies and daws kept about houses, that they will hide their meat when they have plenty of it, and fetch it from their hiding places when they want : so that such an instinct in these birds may answer a double purpose ; both their own support in times of need, and the propagation of the trees they plant ; for wherever they hide a great number of nuts or grain in the earth, we cannot suppose they find them all again, but that as many will remain in the plot

Plate XI



RAVEN



JAY



MAGPIE

From M. Wier's Museum

Plate XII



ROLLER

ORIOLE



MINO



of ground they make use of, as can well grow by one another."

ROLLER.—*Genus. 12.* **T**HE **ROLLER**, (Pl. 12.) has its bill hooked at the point. Only a straggler or two have been found in England; they are numerous, however, in Germany, and are dressed in a more vivid and beautiful assemblage of colours than any other European bird. They are birds of passage, that spend only their summers in Europe, and appear to migrate to Africa for the winter. They thus enjoy a continuation of light and heat, so apparently essential in the production of colours; for it is generally in proportion to the dry and warm regions they inhabit, that birds excel in splendor. The peacock retains the brilliancy of his dress with us, but he is a native of warmer regions. The king's fisher, though he resorts to our shores, remains in the southern districts; but the king's fisher and the roller, if they be boasted of as tenants of the northerly climes, must yield their splendor to the gold and crimson that adorns the mackaw and the vulture. Blue, and its approaches to green, are the colours that most frequently retain their brilliance in temperate countries. It is the colour of our sky, and the reflection of our water; it is found in perfection on the mackerel, and ascends to the pole. Among painters it is a name for cold; and nature, the most skilful painter, is always harmonious. Her glowing yellows and her reds, which are borrowed from the fervor of the vertical sun, are distributed sparingly in our groves; but where pines and oranges are the fruits, parrots and orioles are the tenants.

The garrulous **ROLLER** has the head, neck, breast, and belly of a light bluish green, the coverts of the wings are rich blue on the ridge, and beneath of a pale green; the quill-feathers are dusky above, and below of a fine deep blue, the rump is a rich blue, the tail is brighter and tipped with black. It is remarkable for making a chattering noise, from whence its name. It inhabits woods, and delights in the birch tree. It is more shy than the jay, or the crow, but sometimes accompanies them on plough-

ed land in search of worms. It does not appear that it has ever been taught to speak, though undoubtedly attempts have been frequently made on so beautiful a bird.

ORIOLE.—*Genus 13.* **I**N South America, where the forest is under the dominion of the monkey, many of the feathered tribes would soon be exterminated, if they were not assisted with extraordinary instincts to elude his rapine. Instead of concealing their nests in crevices and corners, where his dexterity would soon discover and destroy them, they hang them at the extremity of branches on the tops of trees. Nothing more astonishes the traveller than the number of these nests, suspended almost from every branch, nodding to every breeze, being ascertained, as he sees the old ones fly in and out of their cylindrical habitations, and that every one contains a young family. The **ORIOLE**, (Pl. 12.) is a beautiful bird, and that species, called in Jamaica the Banana Bird, is remarkable for its brilliant colours. Its black, its white, and its orange, are so finely contrasted, and so frequently relieve each other, that one could not suppose the dazzling effect was produced by so simple a combination. It is common in several parts of Europe. M. Buffon says they have been transported from America. The oriole being once shot in South Wales, Mr Pennant has introduced it into the British Zoology. It is the size of a thrush. It feeds on insects, it hops like the magpie, it is gregarious, and is easily tamed. Its bill is long, sharp, conical, and slightly arched.

GRAKLE.—*Genus 14.* **T**HE **GRAKLE** (Pl. 12.) is about the size of a blackbird, which it greatly resembles, but is distinguished from it, and among the pies, by a convex cultrated bill. Its general colour is black glossed with blue, green, and purple, on the quills is a bar of white. It is found in many parts of the East Indies.

The Barbadoes **BLACKBIRD** resembles the mino. It inhabits Carolina, and other parts of North America, where the species has obtained the name of *Maise Thieves*

from feeding freely on that grain. Such were their ravages, that, in New Jersey and Pennsylvania, threepence a-dozen was given as a reward for destroying them ; and in 1750, they were nearly extirpated ; but to show how ill-qualified we are to hold the balance of nature, and appreciate the value of the instincts of animals, the multiplication of worms was speedily so immense, that it threatened extensive desolation. The hay harvest in New England was destroyed, and nothing remained but to tolerate and recognise, as honest, the thefts of the persecuted grackle.

BIRD OF PARADISE.—*Genus 15.* **T**HE BIRD OF PARADISE has its name from being supposed to be an inmate in that region of the sky tenanted by departed souls ; and it was believed that it lived on the air and the dew, that it never descended to the earth, but, sleeping or awake, hatching or rearing its young, it remained perpetually floating on the sky in supernal enjoyment. To render the stories propagated of this species creditable, the specimens produced by dealers were always deprived of their legs, which they were said never to have possessed, and which, indeed, were superfluous to habits such as those imputed to these extraordinary birds. Birds of Paradise, (Pl. 13.) though little larger than thrushes, are swelled to a great size by means of forty or fifty very long feathers on the sides. They are, then, enabled to support themselves long in the air, though they be unable to direct their flight except in opposition to the wind ; for when the gale blows back on their plumage, they are always at its mercy, and generally driven to the ground, from which they are unable to raise themselves ; they are, therefore, observed to ascend when the wind rises till they meet with a region of the sky where the current is less powerful. They fly in flocks of thirty or forty, under the guidance of a leader, who, in the flight, always bears a higher course ; and so implicitly are they guided by his example, that though they seldom settle but on the highest trees, they sometimes follow him to the ground, where the whole flock must inevitably perish. The feathers are in great esteem in many parts of India,

not only on account of their lightness and beauty, but from the virtues which the superstition of their priests have annexed to them. There are several species.

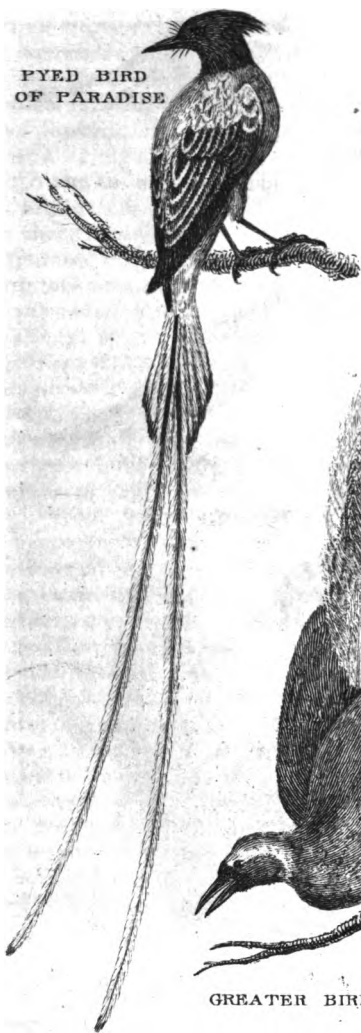
The greater BIRD of PARADISE is commonly two feet four inches in length, with a small head and a long hard bill. The head and back part of the neck is lemon-coloured; the neck is bright emerald green, the breast black, the wings chestnut, the long straight narrow feathers on the sides and back parts of the body are pale brown, and similar in their structure to the plumes of an ostrich. Two long shafts proceed from the rump, and extend beyond the extremity of the tail,

CURUCUI.—*Genus 16.* **T**HE plaintive melancholy accent in which this bird expresses the tenderness of love, amidst the gloomiest retirement of the forest, has procured it, in St Domingo, the appellation of the English lady. Whether the appellation be appropriate is not for us to decide. They are numerous in Brazil, where they build their nests in the holes of trees, and line them with worm-eaten wood, which is nearly as soft as down. The bill of the CURUCUI, (Pl. 14.) is short, thick and convex, the feet have two toes before, and two behind. The head, neck, and breast, are a brilliant green, changing in different positions into a lively blue.

BARBET.—*Genus 17.* **T**HE BARBET has the bill covered half way to the point with a number of bristles, and is cultrate and compressed on the sides. It is about six inches long, the upper part of the head is red, the neck is beautifully surrounded with rings of red and black, the rest of the plumage is brown, with a shade of red. Barbets found in America, have a short and heavy flight, and a grave-disconsolate air; those found in the Indian ocean, are active in attacking the lesser birds, which they do with all the boldness and intrepidity of the butcher bird.

Plate XIII

RYED BIRD
OF PARADISE



GREATER BIRD OF PARADISE

Plate XIV



SPOTTED CURUCUI



RED-CROWNED BARBET



LARK-HEELED CUCKOO



YELLOW CHEEKED BARBET



YELLOW CRESTED WOODPECKER

CUCKOO.—*Genus 18.* **T**HE circumstance of the cuckoo, (Pl. 15.) making use of the nest of another bird to deposit its eggs in, and thus abandoning the charge of its offspring, is so singular, that in all ages it has occasioned many contradictory accounts, and improbable fictions. Its name is obtained from its cry, and was originally applied as a term of reproach to the faithless husband, whose mate was compelled to trust to the generosity of a stranger for the support and education of her young. The cuckoo is a bird of passage, and appears with us about the middle of April. The hedge sparrow, the waterwagtail, or the titlark, is generally the nurse of the young cuckoos, though the hedge sparrow is most commonly preferred. The female cuckoo manages to lay her eggs about the time that the field sparrow has laid two of her's. When the sparrow has sat her usual time, and disengaged the young cuckoo and some of her own offspring from the shell, it presently happens, that her own young and such of her eggs as remain unhatched, are turned out of the nest, where the young cuckoo remains sole possessor. This scene of destruction has, by some, been imputed to the parent cuckoo, while others have supposed them smothered by the disproportioned size of their fellow nestling, and thrown out by the field sparrow; but it appears from the observations of Mr. Jenner, published in Phil. Trans. 1788, that the adopted child is the sole author of this havoc among the offspring of his guardians; that almost immediately upon emerging from the shell, the young cuckoo sets about his malicious operations, and perseveres assiduously till he has destroyed his brethren and rivals. This is accomplished in a very curious manner: the little animal, with the assistance of its rump and wings, contrives to get the nestling on its back, and making a lodgement for the burden, by elevating its elbows, it clambers backward with it to the side of the nest, till it reaches the top, where resting for a moment, it throws off its load with a jirk, and quite disengages it from the nest. It remains in this situation for some time, feeling about with the extremities of its wings, as if to be convinced whether the business were properly executed, and then drops into the nest again. In climbing

up the sides of the nest, it sometimes drops its burden ; but, after a little respite, it resumes its labour with alacrity ; and it is wonderful to see the extraordinary exertions of the cuckoo when two or three days old, if a bird be put into the nest that is too weighty for it to lift out. Mr Jenner remarks, that though nature permits this great waste, the victims of the young cuckoo are well adapted food for many tender quadrupeds and reptiles, that at this season are in search of provisions. The growth of the cuckoo is very rapid, the egg is little larger than that of the field sparrow, but the bird before it leaves the nest, is nearly the size of its foster father. The cuckoo weighs about five ounces, and is fourteen inches long, and twenty-five broad ; the upper parts of the head and body are of a dove colour, the throat pale grey, the breast and belly white, elegantly crossed with black undulating lines. Its feet have two toes before, and two behind, it feeds on insects.

WRYNECK.—*Genus 19.* **T**HE WRYNECK has its name from the whimsical movement of its head and neck. Its food is ants, which it very dexteriously, (like the ant-eater among quadrupeds), transfixes with the sharp and bony end of a long tongue. It builds in the hollows of trees, lines its nest with dry leaves, lays eight or nine eggs, which are white, and have so thin a shell, that the yolk may be seen through it. Its cry is a continued squeak. The elegant penciling of this bird atones sufficiently for the want of splendid colours ; a mixture of grey, black, and tawny, in waves, strokes, and spots, are so finely mingled and contrasted, that, though it may be described as like the woodcock, it greatly excels in lively and distinct tints ; there is only one species, which is found from Lapland to Bengal.

WOODPECKER.—*Genus 20.* **W**HILE granivorous birds are in general plentifully supplied with food, and while birds of passage, not only resort to plenty, but to a genial climate, the fate of the WOODPECKER, (Pl. 14. and 15.) is peculiarly hard. Of a heavy flight, he is condemned to climb the trunks and branches of trees in search of food,

Plate XV



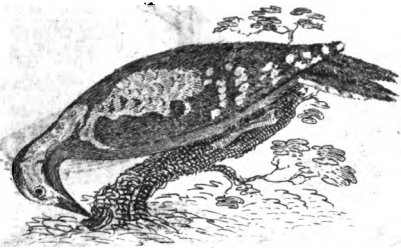
CUCKOO



**LITTLE SPOTTED
WOOD-PECKER**

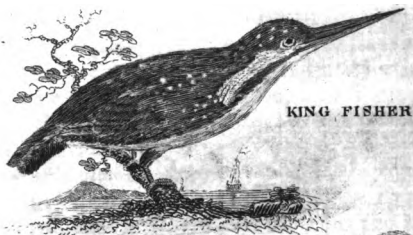


WYRNCK



**MIDDLE SPOTTED
WOOD-PECKER**

Plate XVI



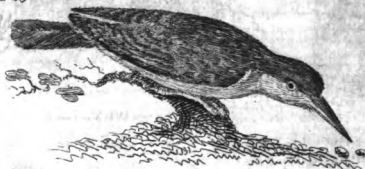
KING FISHER



KING FISHERS
OF BOTANY BAY



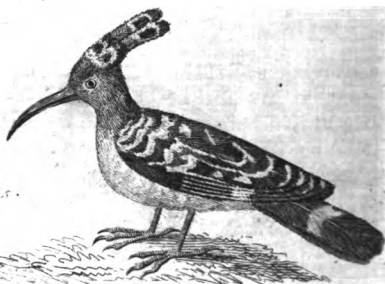
King Fish



NUTHATCH



CREEPER



HOPOO

being entirely restricted to live on insects, which he picks out of crevices, or which he scantily acquires by boring through the bark. For these purposes, however, the woodpecker, like the wryneck, is furnished with a long flexible tongue, armed with a sharp bony point, which it darts to a great length into the clefts of the bark of trees, and transfixes and draws out the insects that lurk there. It is also armed with a strong triangular bill, with which it forces its way into the heart of old trees; where it forms its nest; but though its bill has great force, and makes a noise that is heard almost as far as a woodcutter's hatchet, it does not penetrate a sound tree, and it is a sufficient intimation to the owner to throw down such as it perforates. There are several species, and the green, the great, and middle, least, and spotted, woodpeckers are frequently in this country.

The middle spotted WOODPECKER, (Pl. 15.) is about nine inches in length. The crown of the head is rich crimson, the cheeks white, the throat and breast of a yellowish white, the vent feathers of a fine light crimson; the back and rump are black, the scapulars white, and the quill-feathers black, elegantly spotted with white; they lay five or six eggs of a beautiful white.

JACAMAR. *Genus 21.*

KINGFISHER, *Genus 22.* **I**T was believed of the KINGFISHER, (Pl. 16.)

that it built a floating nest, that resembled those concretions formed by the sea water, and resisted any violence from iron, but could be broke with a blow of the hand; that it possessed medical virtues; that during the time of incubation the bird had power over the sea, and the wind; that, during that period stilled halcion days, the mariner might sail in full security; and that, among birds of delectable song, it was not inferior to the linnet. But the truth appears to be, that the note of the kingfisher is simply a twitter, and that when it was described as a bird of song, it was mistaken for the reed sparrow. It frequents the banks of rivers, builds its nest in holes, which it scoops to the depth of three feet, in the sides of cliffs, and lays from five to nine eggs of a beautiful

white. It feeds on fish, and catches them after the manner of the osprey. It balances itself at a certain distance above the water for a considerable space, when it darts into the deep, and seizes its prey with inevitable certainty. Its wings are short, but it flies with considerable velocity. There are several species of kingfishers, one or other of which are found in almost every part of the world; and blue, in different shades, is the predominant colour. The common kingfisher is not much larger than a swallow. Its head and bill are large, and its legs are short. It is altogether as awkward and clumsy in its proportions, as it is beautiful in its colouring. The crown of the head and upper part of the wings are deep green, spotted with clear blue; the back and tail are also of a splendid azure; a broad orange mark passes from the bill beyond the eyes, when it becomes a large white spot; the whole underside of the body is orange-coloured.

NUTHATCH. *Genus 23.* **T**HE NUTHATCH (Pl. 16.) has its name from the practice of breaking and eating nuts, though commonly it feeds on insects, like the woodpecker. This advantage is of the greater value to the nuthatch, that it is furnished with the instinct of laying up provision for the winter in the hollows of trees. It is pleasing to see the nuthatch fetch a nut from its hoard, place it fast in a chink, and standing above it, with its head downward, striking it with all its force, break the shell and catch up the kernel. It builds in the hollows of trees; if the entrance be large, it artfully fills it up with clay till it be just large enough to admit its own body. Its bill is strong and strait, and about three quarters of an inch long. The crown of the head, the back and coverts of the wings, are a fine bluish grey; the breast and belly are of a dull orange colour.

TODY. *Genus 24.* **T**HE TODY (Pl. 17.) is found in South America, about the size of a wren, it has long hooked claws for scooping a hole in the ground, where it makes a nest of moss, cotton, and feathers. Its eggs are grey, spotted with deep.

yellow. The upper part of the body is ash-coloured, with a mixture of deep blue, the lower parts are yellow.

BEE EATER. *Genus 25.* **THE BEE EATER,** (Pl. 17.) so called from being fond of these insects, also feeds upon gnats, flies, cicadæ, &c. which it catches on wing like the swallow. It is said, that in Candia, where they are very numerous, it is common for boys to hunt for it by baiting a hook with cicada. The insect, though thus pierced, can nevertheless fly, and is allowed to take wing with the hook, which is fastened to a thread. When the bee eater spies the insect, he flies after it with all his force, and catching it, swallows hook and all, and is thus secured like a fish in the water. The bee eater scoops deep holes in the banks of rivers, like the sand-martin and kingfisher, at the bottom of which the female lays from five to seven eggs. The bill is crooked, flat, and sharp. The body is green, with a black belt on the breast. There are several species. They are found in Asia, Africa, and America, and the south of Europe.

HOOPOE. *Genus 26.* **THE HOOPOE** (Pl. 16.) is easily distinguished by a tuft of feathers on its head, which it can raise or depress at pleasure. They are found from Sweden, where they inhabit the large forests, and even from Lapland and the Orkneys, to the Canaries, and the Cape of Good Hope. They are birds of passage, never remaining the whole year even in the mild climates of Greece and Italy. Their food is insects, and especially those which are found in ordure on the ground, for they seldom perch upon trees, or remain long on the wing. They build in the hollows of old trees and ruins, and the female lays sometimes seven eggs. The smell of its nest is so exceedingly offensive, from the tainted food, that the ancients believed it to be made of human dung. The crest consists of a double row of feathers, the highest about two feet long; they are tipped with black; the breast, belly, and rump, are white; the back, wings, and tail, with white and black.

CREEPER. *Genus 26.* **I**T is alleged that the **CREEPER**, (Pl. 16.) is more numerous in Britain than it appears to be ; for, as it runs round the branch of a tree with as much facility as a fly on a glass window, it perseveres in retreating, though it be followed round the tree ever so often. Next to the crested wren, it is the least of the British birds. It is almost continually in motion, but never leaves its native country, or the vicinity of the tree, in the heart of which it has its habitation. It sometimes lays twenty eggs. Its bill is slender and very much curved. The upper part of the body is brilliant, and variegated with brown, white, and black; the throat and under part of the body is a silvery white.

HONEYSUCKER. *Genus 28.* (Pl. 17.) **B**UFFON observes that, in forming this little animal, nature appears to have been hesitating whether she would fabricate an insect or a bird. It is the smallest of all her feathered productions, and, of all animated beings, it is perhaps the most elegant in form, and brilliant in colour. This little favourite may be regarded as her masterpiece. Nimbleness, rapidity, elegance, and richness of dress, endowments which are bestowed sometimes with a sparing hand on the other tenants of the air, are heaped on the honey sucker without measure. To express the dazzling brilliance of its plumage the Indians call it the sun-beam; the emerald, the ruby, and the topaz, sparkle on its apparel. It flies from flower to flower and sucks the nectar that they exude ; and, as it resides in the intratropical regions of South America, where it advances and retires with the sun, it perpetually enjoys the nourishment of an everlasting spring. **HONEYSUCKERS** frequent those flowers most which have a long tube, and never settle while they are extracting the juice, but like bees flutter with so quick an agitation of their wings, that they are altogether invisible, at the same time they make that humming noise which has procured them the appellation of *humming birds*. They often meet and fight, upon the wing, for the right to a flower. In this state they sometimes enter houses where the windows stand open. Their little nests are constructed of cotton, and other soft substances,

Plate XVII

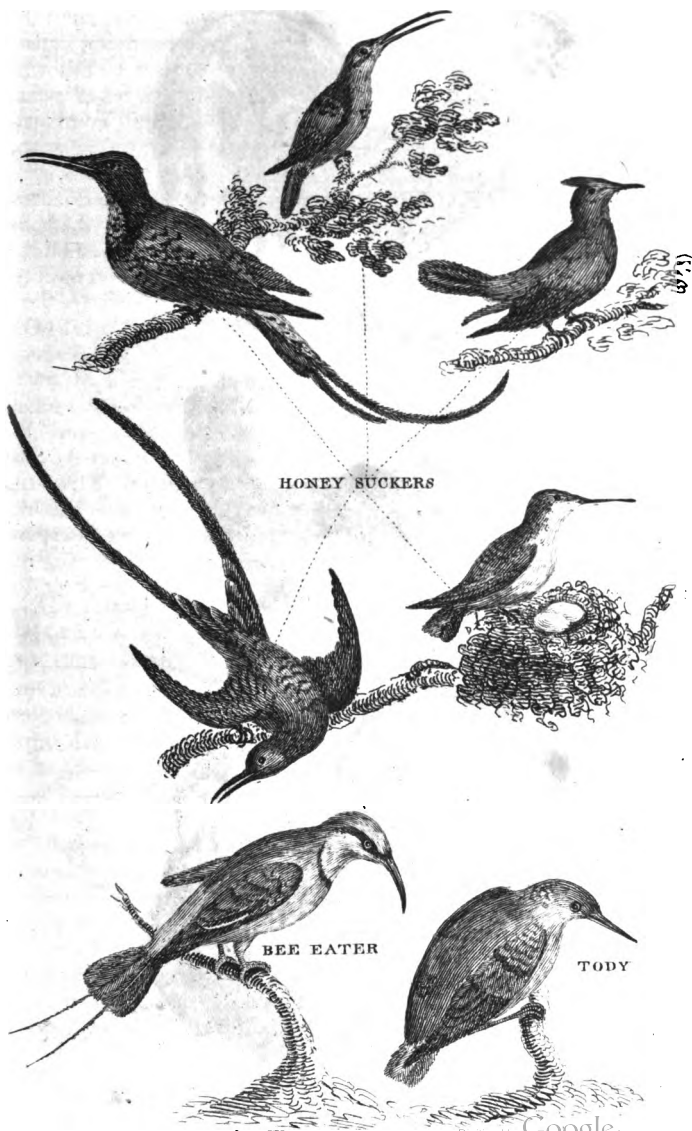


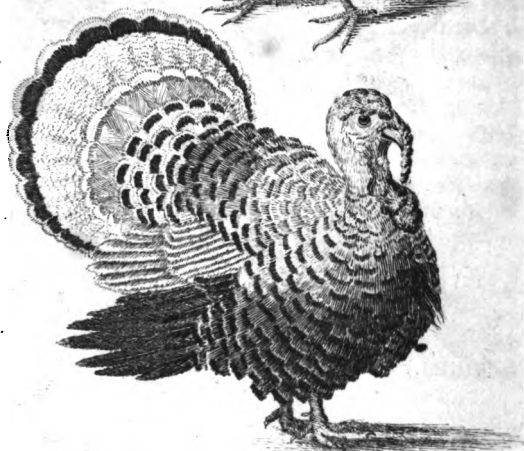
Plate XVIII



COCK



HEN



TURKEY

in the middle branch of a tree, where they cannot be seen from the ground, and where they are not frequently found. Though there be no possibility of taming birds that exist on such delicate food, Captain Davies, however, succeeded in preserving them alive for four months. He made an exact imitation, with paper, of some of the tubular flowers. He painted them of a proper colour, fastened them round a tobacco pipe, and placed them in the cage where these little creatures were confined, the bottoms of the tubes were filled with brown sugar and water as often as emptied, and he had soon the pleasure of seeing all their operations, for they grew familiar, and, though close under his eye, took the nourishment in the same manner as when ranging at large.

The **LITTLE HUMMING BIRD** has a crooked bill ; the body is greenish brown with a red shining inimitable gloss ; the head has a small crest, green at bottom, and at top a sparkling gold colour.

The **RUBY-NECKED HUMMING BIRD** has the top of the head and back part of the neck as bright as a ruby, the forepart of the neck is like the most brilliant topaz, the body is brown, with a faint mixture of green and gold.

The *Least Humming Bird* is exceeded, both in weight and dimensions, by several species of bees. It is an inch and a quarter long. Its bill is straight. The head and upper parts of the body are of gilded green, with reflections of red, according to the light it is seen in.

L

ORDER III.—GALLINACEOUS.

COCK. *Genus 29.* **T**HE extraordinary courage of the Cock (Pl. 18.) is universally known, and the custom of turning, into an amusement, the hatred that individuals of this species have to one another, is perhaps as ancient as the knowledge of the bird. Among the Athenians a day was annually consecrated for cock-fighting. This custom is said to have originated from Themistocles, who animated his soldiers before the battle of Salamis by a reference to the invincible courage of the cock. Observe, said he, with what intrepidity he fights who has no motive but victory, whereas you are to contend for your religion, your liberty, your wives, your children, and for the tombs of your ancestors. In Europe cock-fighting has been long on the decline; and the cock-pit now is seldom frequented, but by the gambler, who often has large sums depending on the strength and activity of this courageous bird. But though the practice of cock-fighting is certainly barbarous, we must acknowledge, that he, who can pass the encounter of two cocks, without feeling something like emulous admiration, is deficient in energy, or is perverted with visionary notions of humanity. Courage is as necessary to our safety, as humanity is to our peace; and the example of courage, which nature has so distinctly exhibited in the cock, cannot, in relation to ourselves, be viewed without interest. The appearance of the cock corresponds with his disposition; his eye is full of fire and vivacity; the contour of his neck, the firmness of his step, his erect and flowing tail, gives him a stately and majestic appearance, and all his movements indicate freedom and strength. He is particularly distinguished by a comb on his head, two wattles under the chin, a ruff of feathers on his neck, which he erects when angry, a circular tail, and by being armed with sharp spurs. The hen differs in all these particulars, has less brilliancy of colour, and is on all occasions timid, but when she is surrounded with a young offspring. Her affection and pride seem then to alter her very nature; no longer vo-

acious or timid, she abstains from every thing her progeny can eat, and furiously attacks the hog, the dog, or the boy, that she thinks will injure them. She makes her nest without care, frequently under a bush; and would, in general, sit when she had laid fifteen eggs, but these being commonly removed from her, she continues to lay to increase their number; and, if well fed, will, in this manner, lay above 200 eggs in a year. She sits about three weeks, and nothing can exceed her patience; for some days she continues immoveable; and, except when the eggs are too hot, or when compelled by hunger, she never leaves the nest. She seldom rears above ten chicks, and twelve is a large brood. That the hen may proceed to lay her eggs, capons are sometimes taught to clutch a brood. This is done by plucking the feathers off his breast, and rubbing the bare skin with nettles, the chickens being put to him, run under his breast, and probably, by streaking it gently with their heads, allay the stinging pain. This being repeated two or three nights, the animal takes an affection for the chickens, and, from that time, performs for them all the functions of an affectionate parent. At Cairo they practice an artificial method of hatching chickens; and, by the careful use of stoves, will produce 6000 or 7000 chickens at a time. In that climate the young brood thrive without clutching; but, in colder countries, it is necessary that they be supplied with warm woollen retreats; so as to supply the place of the mother. Of all birds this species produces the greatest number of varieties, as two are seldom found that exactly resemble each other in plumage and form. It is domestic in almost all countries; and though this was the case, from the earliest period, on the old Continent, yet it is believed that the cock was wholly unknown in America before its discovery by the Europeans. Besides the crowing of the cock, and the clucking of the hen, poultry possess a number of notes expressing pleasure, apprehension, safety, and fear.

TURKEY. *Genus 30.* **I**T is only from the discovery of America, that this species has been known in Europe, and there is little reason to doubt, that every place of the old world has been sup-

plied with its breed of turkies from that quarter. It is only in north America that they are found wild, they are there twice the size of our turkies, and are frequently met with by hundreds in a flock. The savages hunt them with dogs, which for a time they far outstrip; but, being soon run down, they take shelter in the tallest trees, where they are either knocked down with clubs or shot. Except in America, the young of this species is every where delicate; considerable numbers, however, are bred in England, and towards autumn, drivers take them in large flocks to the London market. Upon these occasions, it is pleasing to see how they are managed by the drivers, by means of a red rag tied to the end of a stick, for such is their antipathy to it as a colour, that merely waving it, answers all the purposes of a scourge to a quadruped. The hen sits well and is careful of her brood, which is often fourteen or seventeen in number. There is only one species of which there are a few varieties, the most common is a dark grey, composed of white and black bars. It has a caruncle both on the head and throat. The cock struts, he blows up his breast, spreads and erects his feathers, relaxes the caruncle on the forehead, and the naked parts of the face and neck become intensely red. The turkey lives upon grain and insects.

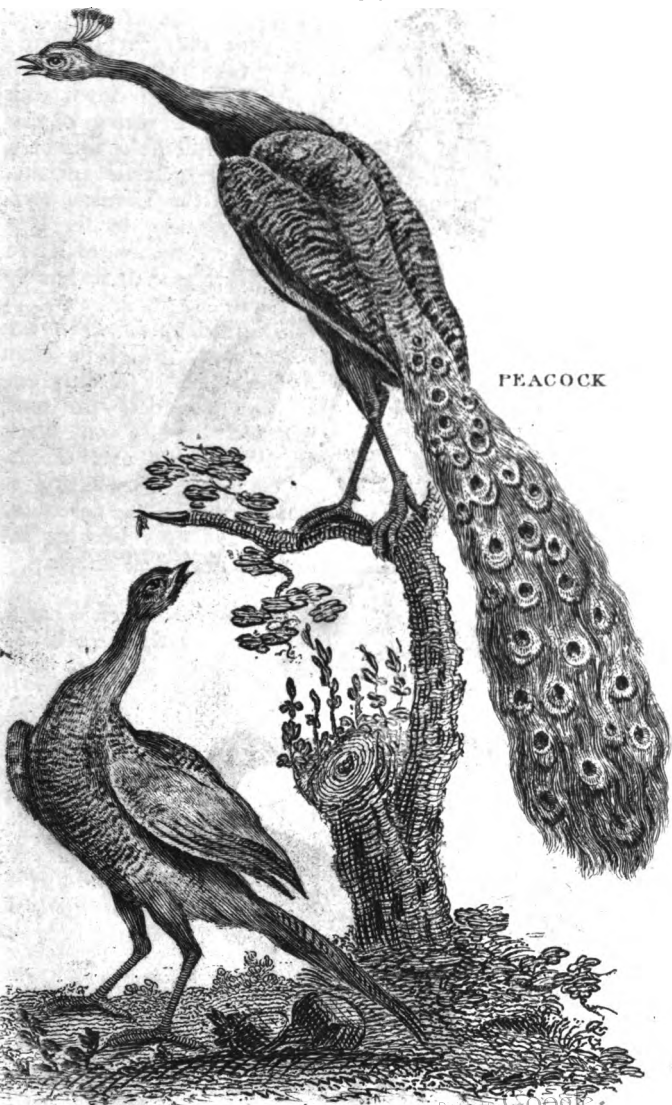
PINTADA. *Genus 31.* **T**HE GUINEA HEN has a long wattle on each side of the head, and is beautifully spotted all over, on a grey ground with white specks.

CURASSO. *Genus 32.* **T**HE CURASSO of South America is easily tamed, and readily mixes with other poultry, but the climate of Britain is much too cold for it.

PEACOCK. *Genus 33.* **T**HE brilliancy of some spots of the humming bird, exceed any thing on the PEACOCK; yet, on the latter the splendor is universal. His head, neck, and breast are green, glossed with gold; the back and rump are green, glossed with copper; above the tail, is a train

Plate XIX

PEACOCK



PHEASANT

Plate XX.

WOOD GROUS



F. WOOD GROUS



BLACK COCK



composed of very long feathers of extraordinary structure, and each, at the end, ornamented with an eye, blue, green, and gold, of inimitable lustre. He is also crowned with a light moveable crest, of the richest hue, so that altogether this magnificent bird possesses an assemblage of rich and various colours, which surpasses art to imitate, or language to describe. When he struts, he erects his tail in the form of a fan, and this, in sunshine, produces a thousand shades of evanescent colours which are completely dazzling, but always astonishingly beautiful. He may be surpassed in vivacity, but his form is tall and graceful, and his movements are unembarrassed and majestic: and thus, according to Buffon, if empire were procured by beauty, and not by force, the peacock, without dispute, would be king of birds. It is a native of India, and is found wild in the islands of Ceylon and Java. It is caught in the night by approaching the places where it roosts with a lighted torch, and exhibiting to it a painted representation of a peacock, which it presently stretches out the neck to look at, when the sportsman throws a noose over the head and secures the game. It feeds principally on grain, but is capricious in its food, and devours insects and tender plants. In search of these, it tears the tiles and thatch from the tops of houses, it roots up the choicest feeds, and lays waste the labours of the gardener; and thus a most unreasonable price is exacted for the pomp of its attendance. Nor does its cry, which is a hideous scream, and most frequently uttered at the dead of night, at all conduce to its value as a domestic. From these circumstances, proceeds a fact which should not be concealed from other beauties, that the enchanting appearance of the peacock cannot procure for it a retreat where many of the more homely looking fowls are regarded as a treasure. The female is less than the male, and has a short train. She lays six or eight greyish white eggs, which she conceals from the male, who would destroy them. The peacock lives about 25 years. (Pl. 19.)

PHEASANT. *Genus 34.* **W**HEN Croesus king of Lydia, seated on a magnificent throne, in splendid attire, required of Solon, if he ever beheld any thing so fine? the philosopher replied, he had seen the beautiful plumage of the pheasant. This answer, which contains a severe proof of human vanity, exhibits also a just estimate of the inimitable works of nature; indeed, nothing but the plumes of the peacock can exceed the vivid and harmonious tints, so happily blended with the richest glosses on the PHEASANT. This bird, though it is easily tamed and mixes with the common poultry, does not thrive in a domestic state; the female sits so ill, that it is necessary to procure a hen to hatch the eggs; but when this is effected, the young, whose natural food is the eggs of ants, inevitably perish if they are left solely to her protection. In captivity, the pheasant never lays above ten eggs, but in the woods, a brood consists of eighteen or twenty young; and, in this state, she hatches her eggs and watches over her young with patience, vigilance, and courage. Her haunts are young coppices unopened with pathways and guarded from the approach of cattle; from hence, like a hen, she leads her flock of chickens three times a-day, at sun-rise, at noon, and at sun-set, in search of proper subsistence. The sportsman who seeks for the retreat is acquainted with their habits, knows where to lay his snares, and frequently makes captive the whole brood. Of all birds they are most easily shot; like the partridge, they arouse the sportsman with a whirring noise, and being very large and of a heavy flight, he is almost sure to kill. The pheasant is reckoned as great a delicacy as can be served up to the table.

GROUS. *Genus 35.* **T**HE Cock of the Wood, (Pl. 20.) the largest of this genus, is two feet eight inches long, and known in the Highlands of Scotland by the name of Capercalze, or the horse of the woods, in reference to his immense size. It feeds on the shoots of the pine, nuts of the birch, and berries of the juniper. Though it is esteemed excellent food, its flesh is often so disagreeably infected by feed-

ing on the pine, that it is scarcely eatable. These birds do not pair; when the male calls upon his mates, his cry is a loud and shrill explosion, followed by a noise like the whetting of a scythe. He is distinguished by a green glossy breast; his head, neck, back, and sides, are elegantly marked with lines of green and black; the wings are crossed with undulating lines of black and brown; the belly is black, and the legs strong and covered with brown feathers. The female differs greatly in colour, and is considerably less; her throat is red; her head, neck, and back, are marked with bars of black and red; her belly is orange-coloured. She lays from eight to sixteen eggs, eight at the first, and more as she advances in age.

The **BLACK COCK**, (Pl. 20.) about one foot ten inches long, is, except a white spot on the wings, wholly black, glossed on the neck with a shining blue. The female is little more than half the size, and differs in colour, being marked with dull red bars. The young males live together through the winter, but in spring they fight with the fury of game cocks, and often kill each other; the victor announces his victory from some eminences, with cries and repeated claps of his wings. The hen seldom lays more than six or seven eggs; when obliged to leave them in quest of food, she covers them artfully with moss or leaves. She is now as tame as she was formerly timorous, and can scarcely be driven from her nest. The young ones run with vivacity after the mother the moment they are hatched, though sometimes they are not entirely disengaged from the shell; their food at first is ants eggs, and the wild mountain berries, when older they feed on the tops of heather, and the cones of the pine.

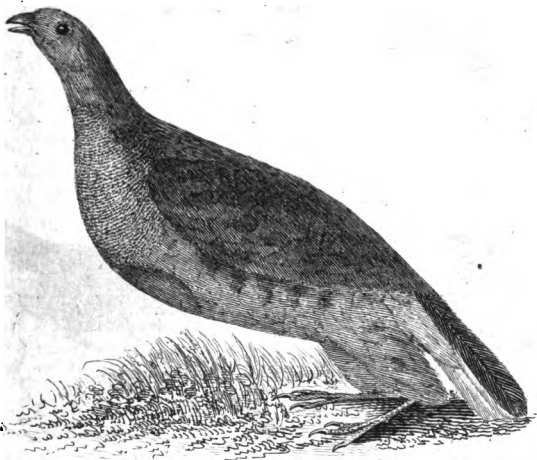
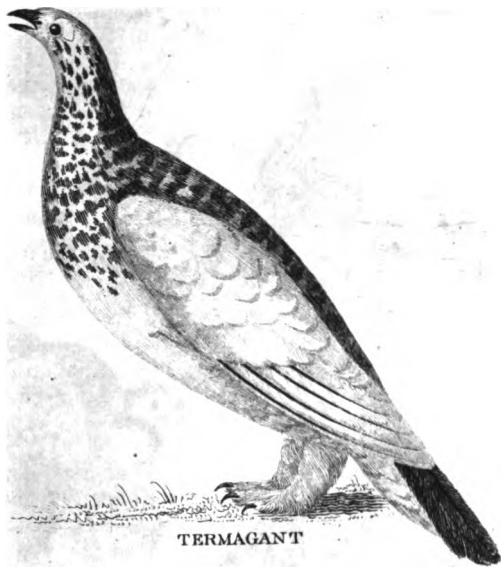
The **RED COCK**, or **MOOR FOWL**, is peculiar to the British isles; they are always found on the tops of hills where they feed on mountain berries and the tops of heath; they pair in the spring, and lay from six to ten eggs, the young brood follow the hen during the summer, and in winter they are found in flocks of forty or fifty, remarkably wild. The red cock is about fifteen

inches long; the back and wings are red, the head, neck, and thighs, paler; the breast and belly of a purplish brown, the whole being spotted and barred with black.

PTARMIGANS (Pl. 21.) are only found on the highest hills, where they perch upon the rocks; they are tame filly birds, are driven along like poultry: and, if provoked to rise, their flight is short and circuitous, like pigeons. Like moor fowl, they keep together in small packs, but never like them, are found among the heath, but take shelter among the rocks and under loose stones. In winter, they form a lodgement under the snow, where they lie in heaps to protect them from the cold. The body is pale brown, mottled with black, the belly and wings are white, the shaggs of the quill feathers black; this, and the last species, that live upon the ground, are feathered to the claws; the two preceding kinds, that perch on trees, have naked feet.

The **PARTRIDGE** (Pl. 20.) accommodates itself to every climate. It is found in South and North America, in Senegal and in Greenland. In northern regions it is brown in summer, but on the approach of winter it becomes perfectly white, and is furnished with a warm lining of fine down. The young ones flock together in winter, but with the spring hostility commences among the males, which is fatal to many of them, and is only finished by being provided with mates and separating into pairs. As partridges live in the neighbourhood of man, and have many enemies who are constantly harrassing them, they have acquired a cunning superior to the instinct of other birds of the same tribe more retired in their habits. When a dog or other formidable animal approaches the nest, the female sets about to deceive him, and pretends to be incapable of flying. She just hops up, and then falls down without going so far off as to discourage her pursuer, when she has fairly drawn him away from her treasure, she at once takes wing and leaves him stupified with astonishment. A covey is generally from ten to fifteen in number. The breast of the partridge is prettily marked.

Plate XXI



PARTRIDGE
From M^r Wier's Museum

Plate XXII



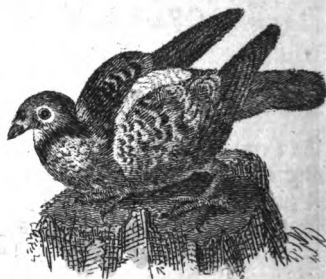
TURTLE



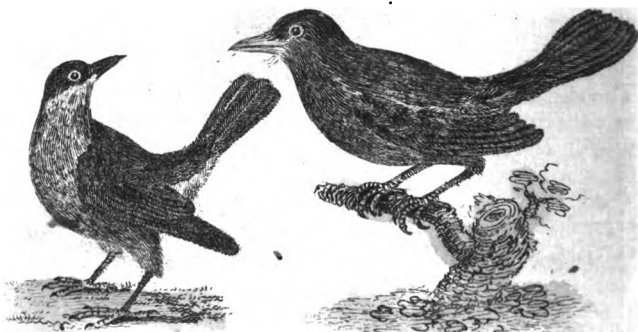
POMPADOUR PIGEON



STARLING



ROCK PIGEON



with small undulating lines, ash-coloured and black, and is distinguished by an orange-coloured mark in the shape of a horse-shoe. It is thirteen inches long.

The **QUAIL** is distinguished from the partridge by its breast, which is pale orange, spotted with black, and by being only seven inches and a half long. It is as generally diffused, but in fewer numbers. It fights with great spirit, and its habits are like others of this kind, excepting that it is a bird of passage.

ORDER IV.—COLUMBINE.

PIGEON. *Genus 39.* **T**HE DOVE (Pl. 22.) has been generally considered as the symbol of innocence. Its form is elegant, and its cooing is plaintive and affectionate. It feeds its young with grain, which it treasures up in its crop, where it is moistened and fitted for their weaker stomachs; and male and female are not only attached to one another for a season, but frequently for life. Being easily induced to accept of the protection of man, perhaps enhances the character of innocence; but where the character insinuates any thing like the propriety of imitation, it should be announced, that man never offers his protection but from interested motives, and seldom bestows it but for a terrible price. Pigeons, well domesticated and fed, multiply so very fast, though they have only two eggs at a time, that one pair, in the space of a few years, will produce fifteen thousand. In Persia and in Egypt, they constitute a great part of the riches of the husbandman. The vast number of varieties in the domestic pigeon, may be conceived from what adepts allege, that by making a proper choice in the dovecote, they can produce any shape and colour, being able to breed to a feather. Many of these varieties, they have distinguished by names expressive of their several properties, such as tumblers, carriers, jacobines, croppers, powters, runts, and a num-

ber of other appellations intelligible only to themselves. The most celebrated of these is the carrier, who, from its attachment to its native place, has been made use of in different countries to convey intelligence, by letters tied under the wings, with which it speedily returns, however far it may be removed from home. In the east, these birds have been long used to spread intelligence to all parts of the country, with perhaps more certainty than we now effect with telegraphs. Several species of the pigeon, which are all birds of passage, are described by naturalists; but the stock-dove, as its name implies, is the origin of all the beautiful varieties of the tame pigeon, and is still found in its wild state, in many parts of our island; it is of a deep bluish ash-colour, the breast dashed with a fine changeable green and purple, the sides of its neck with shining copper-colour, its wings marked with two black bars, the back white, and the tail barred near the end with black. It builds in the holes of rocks, and hollows of trees.

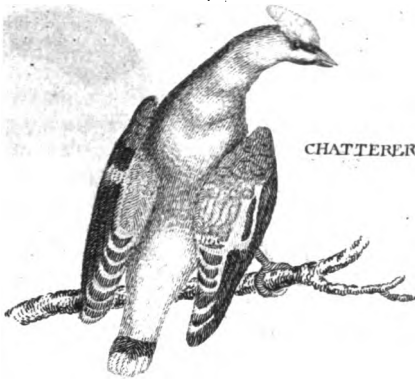
The RING DOVE has a semicircular line of white on the hind part of the neck, builds its nest on trees, and has hitherto resisted every attempt to domestication; it is eighteen inches long.

The TURTLE is about twelve inches long, is very shy and retired; the back is ash-coloured, the breast light orange. On each side of the neck is a black spot tipped with white, the belly is white.

ORDER V.—PASSERINE.

STARE. *Genus 39.* **T**HE STARLING (Pl. 22.) stands at the head of a new order, which comprehend a number of little winged families, the largest of which is the thrush; and these not only please by the familiarity of their manner, and their external beauty, but they enchant with their songs. Starlings breed in hollow trees, eaves of houses, towers, ruins, cliffs, and often in high rocks over the sea, such as

Plate XXIII



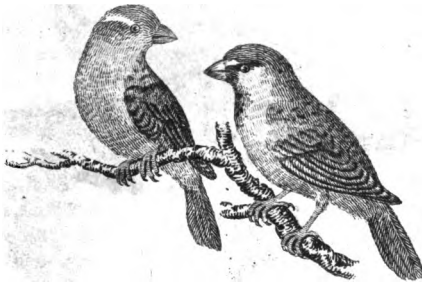
CHATTERER



CROSS BILL



GROSBEAK

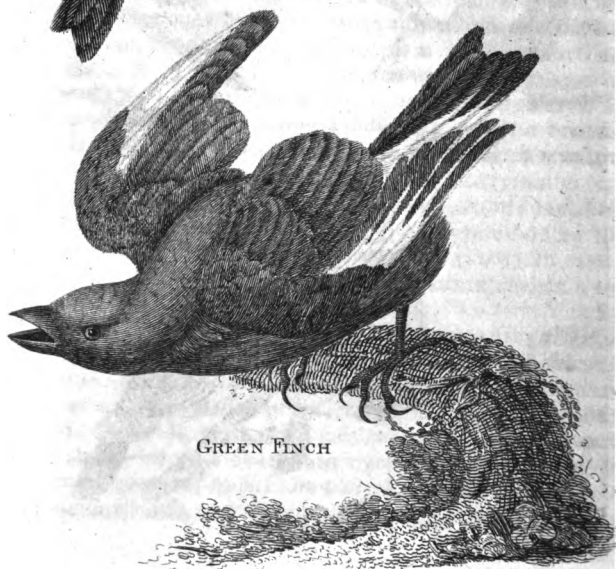


SPARROWS M & F

Plate XXIV



BULL FINCH



GREEN FINCH

From M^r Wiers Museum

Beugnot

those of the island of Wight ; they lay four or five eggs of a pale green ash-colour, and make their nest of straw, fibres of roots, and the like ; they feed on worms and insects. They assemble in such compact and numerous flocks during winter, that no bird of prey dares to attack them ; for this reason, however, the wiles of the bird catcher are more effectual. In Lincolnshire, where reeds are the thatch of the country, and are harvested with much care, they collect in myriads and do much mischief, by roosting and breaking down the reeds with their weight. They are very docile, and may be taught to speak. It said that they learn Greek and Latin ; and there is no doubt of the fact, to the extent that they acquire German, French, or English. They can articulate the letter R, and have, indeed, so pliant a throat, that it accommodates itself to every accent. They are near nine inches long ; the whole plumage is black, very resplendent, with changeable blue, purple, and copper ; each feather marked with a pale yellow.

THRUSH. *Genus 40.* **N**OTHING is more wonderful than the musical faculty of birds, and nothing excites more pleasing emotions than their songs ; they are a voice to the beauty of the woods, and every where diffuse a language of gladness. During the winter months, they are mute, or notify their wants and the desolation around them, by a chirup, or a single melancholy note ; but the same breath that reanimates the vegetable world, awakens them to joy. The first flowers of spring, the verdure of the vales, the budding of the woods, the blossom of the gardens, are ushered in, and greeted in their progress, with songs. Many of them, in the heat of summer, are silent, but soon they resume their voices, and several continue to sing till a late period of the season. Few of our singing birds continue longer in song than the **THAUSH**, and there is none whose song is more delightful. It is expressive of much sensibility ; his notes are clear and articulate, and his pause is the silence of rapture. He seems to delight in the fragrance exhaled by the garden after a shower, for then he seldom fails to perch on some lusty twig, where, opposed to the opening sky, he sends

forth his melodious song of joy. The thrush builds in bushes; the nest is made of moss and straw, and the inside is curiously plaistered with earth. It lays five or six eggs, of a pale bluish green, with dusky spots. The upper part of the body is a fine olive brown, clouded on the wings; the cheek and throat are mottled with brown; the breast and belly are whitish yellow, marked with large black spots. Insects, holley, and mistletoe berries, are the food of all the thrush kind.

The MISSELBIRD is the largest of this tribe, it being eleven inches long, when the song thrush is hardly nine. In every other respect they perfectly resemble one another.

The BLACKBIRD, (Pl. 22.) whose fine, clear, and expressive note is so often heard in the woods, is too loud for a domestic songster, except when he is exposed in his cage to the open air, when his morning notes resound through the village with an animation that delightfully accords with the splendor of the advancing day. It begins to sing early in the spring, continues for part of the summer, desists in the moulting season, but resumes its music for some time in September, and the first winter months. Though from choice it lives in the neighbourhood of man, it is very retired and solitary. It frequents hedges and thickets, in which it builds earlier than other birds. The nest is formed of moss, dead grass, and roots, the whole is plastered with clay, and that is covered with hay or small straw. It lays four or five eggs, of a bluish green, with irregular dusky spots; the colour of the male is a fine deep black; the bill and edges of the eyelide yellow. The female has a dusky bill, and the plumage is rusty black.

The REDWING exactly resembles the thrush, but is considerably less, and is of a reddish orange colour under the wings. This and the Field-fare, a kind of this tribe, were the *turdi* of the Romans, which they fattened with crumbs of figs and bread mixed together, and which they reckoned such delicious food, that they were frequently procured at an enormous expence.

Besides those mentioned, this tribe comprehends the *ring* and *water ouzels*, which are British birds, together with a number of foreign birds, but imperfectly known; among which must be mentioned, the Mocking Bird of America, which is said to be the most melodious of all birds, the nightingale not excepted. To the charms of its natural song, it adds the wonderful faculty of counterfeiting the notes of every bird in the forest. Far from ridiculing the songs which he repeats, he seems only to imitate in order to improve them, and to perfect and increase his own powers, by exercising them in every possible manner. The mocking-bird, not only sings with taste, but with action and vivacity; he accompanies every note, whether natural or acquired, with corresponding gestures of the body. If the air he warbles be brisk and lively, he beats time by the rapid and fluttering motions of his wings. If his voice, from a loud and full tone, dies away by gentle cadences into perfect silence, more charming than melody itself, he is skimming at the same time above his tree, gradually lessening the undulations of his wings, till at last he seems to rest suspended and motionless on the bosom of the air. This description, borrowed from Buffon, is so sumptuous an account of a foreign bird, which could not have come under his own observation, that we doubted whether it was not mocking us; but as it relates nothing unnatural, we cannot withhold belief, because an enchanting subject is recorded with enthusiasm.

CHATTERER. *Genus 41.* **O**F the manners of the CHATTERER little is known; they are wanderers that make short migrations; they approach the houses of the natives of South America, and commit devastations on their rice fields. That called the Bohemian Chatterer appears about Edinburgh in February, and feeds on the berries of the mountain-ash; they go in flocks, feed on grapes where vineyards are cultivated; are esteemed delicious food, and are easily tamed. It is a beautiful bird, being sweetly penciled with red, purple, orange, white, and black; but what distinguishes this from other birds, is the red horny appendages which terminate the middle feathers of each wing.

M

COLY. *Genus 42.*

GROSBEAK. *Genus 43.* **T**HE GROSBEAK (Pl. 23.) from which the genus has its name, is furnished with a thick funnel-shaped bill, so strong as to break kernels and the hardest fruit-stones, such as those of the cherries and almonds. It is common in France, and builds in trees about twelve feet from the ground ; the back and covert of the wings are brown ; the breast and belly are a dirty flesh-colour.

The CROSSBILL (Pl. 23.) is remarkable for a bill, whose crooked mandibles cross one another without meeting at the point, they are thus enabled to divide an apple with one stroke of the bill, which would otherwise require many cuts to get at its kernels. This bill is admirably adapted, too, for scaling the cones of pines and firs, which they accomplish with great dexterity, to get at the seeds. They are numerous in many parts of Europe ; but are inconstant visitors in England.

The BULLFINCH. (Pl. 24) In the wood he does not attempt to sing, and the notes he makes use of are harsh ; but in private he is such an apt musical scholar, that he is taught any tune by the flagellet, and executes it with amazing sweetness and truth. The songs of the lark, the linnet, and the thrush, have perpetual interest ; but he who hears a bullfinch, for the first time, is not only delighted with his tone, but is struck with astonishment, that a little creature should execute, with such delicacy and precision, provincial airs which he thought peculiar to man. That birds charmed with their songs is among the first articles of our knowledge, but in a new species we expect a new air, delivered with that wildness which is so characteristic of the music of birds ; instead of this, we see the bullfinch come at the call of his master, perch upon his shoulder, and, at his command, begin and finish a delicate Scotch air, or execute a difficult musical lesson. If our admiration is still farther excited by hearing the bird speak, if he utter some of his little phrases, which he does with an air of discernment and penetration, we are apt to be-

lieve him animated by an intelligent principle; but a false judgment, concerning the scholar, is the less surprising, says Buffon, as we are often equally wrong in ascribing intellect to his master. The bullfinch is common on most parts of the Continent of Europe. Its nest is built of moss, and its eggs, five or six in number, are of a dirty bluish white, marked with dark spots. It approaches the garden and the orchard in Winter; and, in Spring, is said to be very destructive among fruit trees, by eating their tender buds. Its head, wings, and tail, are black; the cheeks, throat, breast, and belly, are red; the hind part of the neck and back are grey; the coverts of the tail and vent feathers are white.

The GREENFINCH (Pl. 24.) is common in this island. Its call is like that of the canary, but it does not sing in the field; though, it is said, that, in confinement, it may be taught to pipe in imitation of other birds. It is easily brought up from the nest; and so easily tamed when taken wild, that, in five minutes, it will eat from the hand. The mode of effecting this, is to carry it into a dark room, and to make it hop from one finger to another, by putting under its breast the forefinger of each hand alternately, repeating this for a short time, with occasional strokes and caresses, the bird is speedily satisfied of its safety, eats from the hand, and continues ever afterwards tame. It is of a yellowish green. The edges of the outmost quill feathers, and of the outmost feathers of the tail, are yellow. The colours of the female are less vivid. It lays five or six eggs of a pale green with reddish spots. It builds in hedges; and, in the breeding season, one of them is commonly observed fluttering in a pretty manner over the bush, where the other is engaged in protecting the eggs, or nourishing the young.

BUNTING. *Genus 44.* **T**HE SNOW BUNTING (Pl. 23.) has white wings. The outer edge of the prime feathers are black; the tail is black, with three white feathers on each side. In Scotland these birds are called Snowflakes, from their appearance in hard weather, and in deep snows, when they arrive among the Cheviot-hills, and in the high-

lands, in amazing flocks. A few breed in the Highlands, on the summit of the highest hills, in the same places with the ptarmigans; but the greatest number migrate from the north, and are certain forerunners of bad weather. In their flights they keep very close, and mingle confusedly together, flinging themselves collectively into the form of a ball, at which instant the fowler makes great havoc amongst them. In Austria they are caught and fed with millet, when they grow as fat as the ortolan, another species of this tribe, which is fattened, for the table, in the following manner: The birds are placed in a chamber lighted by lanthorns, that they may not be agitated with the vicissitudes of day and night, and being fed with oats and millet, they grow so fat, that they would soon die if they were not killed at the critical minute. They are a mere lump of fat, but of exquisite taste, though soon apt to satiate.

The **YELLOWHAMMER**, of a yellow colour, greenish on the back, but clearer below, is found over all Europe. It is a familiar bird, frequents the barn-yard in winter, like the sparrow; and, like it, resorts to the highways, and picks from horse dung its half digested grains. It makes a large flat nest on the ground, and lays five or six eggs. The *Reed Sparrow* is a bird of this tribe, and is of great celebrity for its song, which, like the nightingale's, is reserved to give enchantment to the solemnity of night.

TANAGER. Genus 45. **THE TANAGER**, in South America, may be regarded as the representative of the sparrow of Europe, which it resembles in almost every particular, excepting in the colour, which is sometimes scarlet.

FINCH. Genus 46. **THE GOLDFINCH** (Pl. 25.) begins his musical warbling about the beginning of March, and continues the well known melody through the spring. His notes are sweet and various, and the beauty of his song is enhanced by the elegance of his form, the brilliancy of his colours, and the docility of his manners. Goldfinches in winter,

assemble in large flocks. They feed on the thistle and other seeds. They frequent orchards, and build in fruit trees; and the nest is elegantly contrived with moss and bents, lined with hair, wool, and down. They lay five eggs, white spotted with deep purple. The goldfinch has its cheeks white, the top of the head black; its back is a fine tawney brown, the belly white, and the wings marked with black, beautiful yellow, and white; the tail is black.

The CHAFFINCH (Pl. 25.) entertains us during the early part of the year with a song, which it is agreeable enough to recognise, but which is too short to be interesting. The finches of Essex, however, are said to be possessed of a length and variety of song which is very superior to those of other places. The chaffinch constructs a very elegant nest, of nearly the same materials as the goldfinch, and lays four or five eggs, white tinged and spotted with purple. The chaffinch has the hind part of the head and neck of a bluish grey, the cheeks and throat are red, the back tawney, the wings black, with large white spots, the tail is black.

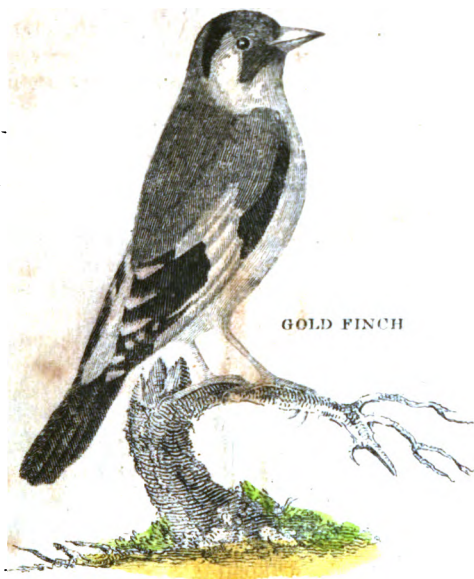
The SPARROW (Pl. 23.) builds its slovenly nest under the eaves of houses, and in holes of walls; but, very often, it is said, it takes possession of the nest of the martin. Mr Pennant has repeated a story, to show that this insult, to the expelled martin, does not pass unrevenge; for he assembles his companions, and having, by their assistance, plastered up the hole with dirt, flies away twittering in triumph, leaving the miserable invader to perish in the possession of his robbery. Sparrows are a perpetual tax on rural industry; and no precaution can prevent them from sharing in the mess allotted to the pigeons and the poultry; but, though they are most familiar birds, they are so crafty that they are not easily taken in a snare. In Autumn they collect in large flocks, and are often shot by dozens in the barn-yard, and on the neighbouring trees and hedges. Sparrows have no song; and, in the country, we are reconciled to their disagreeable chirp, as we are in town to the incessant noise of the street. This species is common in Europe, and is met.

with in most parts of Asia and Africa. The body is variegated with brown, grey, and black; the chin of the male is black. The female lays five or six eggs of a reddish white, spotted with brown, and has commonly three broods in a season.

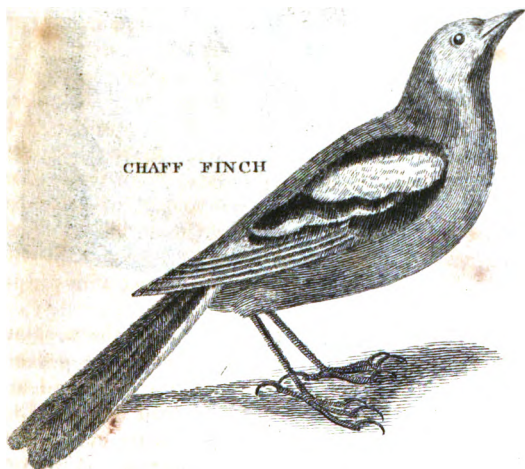
LINNET. (Pl. 27.) An amiable severity against those who are guilty of cruelty to animals, has frequently been extended to the practice of domesticating singing birds. But, if the little warblers are denied the liberty of the field, and secluded from their kind, they are secured from the ravages of their common enemies, and supplied with plenty of food. The gratification of enjoying their song, cannot be greatly oppressive, where they pour it so copiously. Few birds, in their natural state, sing three months in the year, while all tamed birds sing much longer, and some of them have scarcely an interval. But if the youth who robs the song-bird of its young, be supplied with an apology, he is cautioned not to hurry the nest till it be fully ripe; if he destroy the eggs, he possesses a disposition unfeeling and cruel, and he should be marked by his companions as one that ought to be shunned by them, or corrected by his superiors. No bird is more esteemed as a domestic songster than the linnet. Its notes are sprightly and plaintive, sweet and varied, and it continues in song for the greatest part of the year. It is an elegant bird, and this it owes, not to the splendour of its colours, but to their simplicity, and to the symmetry of its form. It is generally of a reddish brown mixed with dusky spots; the bottom of the breast is blood red; the belly white. Linnets, as they build their nests among furze, enliven with their songs more remote situations than other song birds that are generally found in the garden or the orchard. Their nests are made of moss and bents, and lined with wool and hair. They lay five white eggs spotted with purple.

The **SISKIN** (Pl. 27.) has the head black, the neck and back green, the rump, throat, and breast, are greenish yellow, the belly white. It has been represented as a good singing bird; is met with in the bird shops in London, and, being rather a scarce bird, sells at a higher price than the merit of his song deserves. It is very

Plato XXV



GOLD FINCH

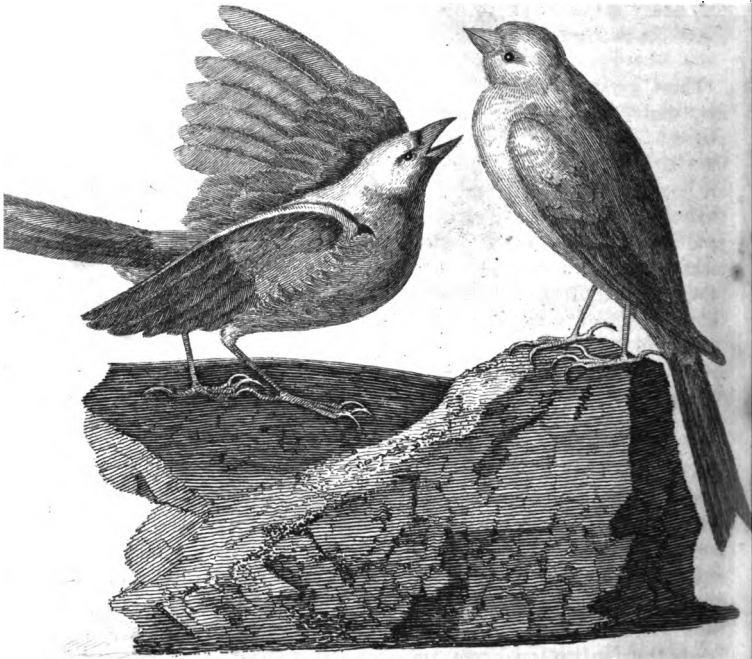


CHAFF FINCH

From Mr. Wier's Museum

Eschsch.

Plate XXVI



CANARIES

From M. Wier's Museum

Baugh f.

tame and docile, and is often kept and paired with the canary bird.

The **TWITE** has the feathers of the head and back dusky edged with reddish brown, the rump is crimson the wings and tail are dusky. The female wants the red mark on the rump. They are taken, in the flight season, near London, along with other linnets. Their name is taken from their note, which has no music in it, and which is so well known to the bird-catchers, that they know whether there be any twites among a flight of linnets at a considerable distance.

The **CANARY BIRD**. (Pl. 26.) This charming songster, which is only inferior to the nightingale for execution and variety of song, was originally brought from the Canary Islands. There, where they are still found, the harmony arising from vast numbers renders romantic those scenes where the richest fruits are the spontaneous productions of the earth, and where the happy temperament of the climate gives such a singular glow of cheerfulness to the human disposition, that these islands were formerly known by the appellation of *fortunate*. It is uncertain at what period canaries were first brought into Europe; but they are now become so numerous that there is no necessity for transporting them from their native groves. They have not only been propagated in vast numbers as articles of sale, but as a domestic recreation to the affectionate and young, to whom, in the course of incubation and nourishing their brood, they exhibit a number of pleasing little pictures, of neatness, assiduity, and affection. The male bird, however, exhibits occasionally a perversity of disposition, which, without considerable management, will not fail to produce the most fatal effects. When put into the cage with a single female, his first achievements are of so hostile a nature that he commonly kills her. To prevent this, two females are confined together, who soon form such an attachment, that, when the male is admitted, and pretumes to attack one, the other immediately flies to her assistance. If the male discovers an inclination to break the eggs, or destroy the young, which is not uncommon, he must be confined in a small cage in the middle of

that where the female breeds; she will thus be in safety with her charge, and her toils will be rewarded with singing, for he now seems assiduous to please, and pours forth strains of comfort, that; from morning to night, scarcely admit of an interval. Canaries are bred in Germany on a large and expensive scale. Buildings are erected for them with square apartments at each end, which are planted with trees, in which they delight to sing. These apartments are covered on the bottom with sand, strewed with rape and other seeds, and have communication, by many apertures, with the middle part of the house, which is darkened, and planted with brooms for the birds to build their nests in. The nests, when formed, are guarded by partitions of nets from the encroachments of other birds. The canary will produce with the goldfinch or linnet, but the offspring is always barren, and is called a mule-bird: In its wild state it is of a dull green colour, but in confinement it is subject, like other domestics, to considerable variety, being white, yellowish, mottled, or green. It is said to live twelve or fifteen years.

FLYCATCHER. *Genus 47.* FLYCATCHERS (Pl.

29.) breed with us, but are birds of passage, and depart in September. They are very numerous in the warmer regions of Asia and Africa, and have their name from their mode of catching flies, which is their food, and which they collect upon the wing. They build their nests on the sides of trees where an old limb has been torn off, in the holes of walls, and in posts, and the beams of barns. They have four or five young at a time, which, when able to fly, are conducted by the old ones to the higher boughs of trees, whence they are taught to drop perpendicular on the flies beneath; they always return to the place from whence they spring, and as this manœuvre is often successively repeated, it has a very frolicksome appearance. The spotted flycatcher has a brownish head, obscurely spotted with black, the back is of a mouse colour, the wings and tail dusky.

Plate XXVII



TWITE



SISKIN



LINNET

YELLOWHAMMER



SNOW BUNTING

Plate. XXVIII



SKY LARK



CRESTED LARK

From M^r Wiers Museum

Beugo F.

LARK. *Genus 48.* **T**HE SKYLARK (Pl. 28.) is so exquisite a song bird, that, though he be heard in every field, the frequency of his song does not lessen its value, but invites us again to listen, and anew calls forth our admiration and delight. The sweetness, variety, and expression of his notes endear to us the scenery that surrounds us, while the beautiful landscape in turn gives a superior interest to his song. The first breath of Spring receives his congratulations, and the first dawn of day beholds him already on the sky. When he rises from the ground he ascends, for some time, with short flights, and with interrupted notes. He presently takes a more upward flight, and his song, which is still feeble, becomes more connected. His quivering wings now bear him perfectly perpendicular, and his notes gradually swell, as he ascends, till they have reached the full extent of his voice. He continues this volume of song till he is lost in the sky, where he is still heard, and heard to ascend; but at last his voice is lost, and the astonished apprehension is doubtful of his return. The object which the eye can follow it does not so easily discover, and his descent is often considerable before he is again visible. His song is still upon the stretch, but it is marked with greater energy as he occasionally rises on the sky. In mid air he retains wholly his force; but, as he descends, he lowers his notes by degrees, and they quite die away as he drops on the ground. Larks build their nest on the ground, at the side of a turf, or beneath a clod; and the female lays four or five eggs of a dusky colour. They assemble in the Winter in large flocks; and, in the neighbourhood of Dunstable, near 50,000 are taken between the months of September and February, and sold in the London market. The lark has a slender bill; the back and wings are mottled brown; the chin is white; and the breast yellow spotted with black. The *woodlark* and *tielark* are of this genus, and both birds of excellent song. They both sing perched upon trees, though they also sing flying. The woodlark sings in the night.

WAGTAIL. *Genus 49.* **T**HE WAGTAIL (Pl. 29.) is so named from the motion of its tail, which it is perpetually stirring, frequents

the sides of ponds and small streams, where it feeds on insects and worms; in spring and autumn it is a constant attendant on the plough; and in England, during the winter, it migrates from north to south. The head, back, and upper and lower side of the neck, are black; the breast and belly white.

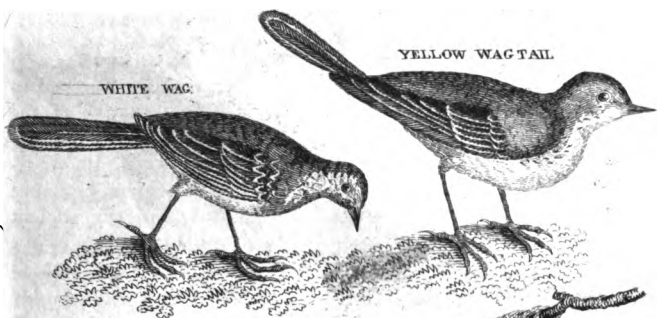
Yellow WAGTAILS, like the former, frequent streams, and feed on insects. They build on the ground in corn-fields; the nest is made of decayed stems of plants and fibrous roots, and lined with hair: they have five eggs. The upper parts of the body are olive green, the under parts of a most beautiful yellow.

WARBLERS. *Genus 50.* **T**HE NIGHTINGALE is universally allowed to be superior in song to all the musical tenants of the grove. Seated in a bush, he begins his song in the evening. Like the lark, it is at first feeble, timid, and indecisive. By degrees he assumes more confidence, becomes more warm and animated, till at last, like the ancient orators, he captivates and overwhelms his audience by the full exertion of his astonishing powers. This exertion, so ravishing in itself, takes more powerfully a hold of the imagination, as it is heard during the stillness of the night. When observation is shut out from the variety of objects exhibited by day-light, and, confined to the fleeting clouds and the shadowy form of objects, the vigils of this extraordinary bird must have its full effect, accordingly the nightingale has at all times been the favourite songster of poets; and his notes have been represented to sympathise with his passion, whether it spoke the tenderness of enjoyment, or the pangs of disappointed love. The nightingale, in his wild state, sings but a few weeks in the year; his voice, which is more expansive than the human, is said to be heard at a mile distant around the bush where he sits. When tamed, he sings the greatest part of the year. He is about the size of a hedge sparrow; is a bird of passage; comes to England about the beginning of April, and leaves it in August. They frequent thick hedges and low copices, where they generally keep the middle of the bush, and are

Plate XXIX

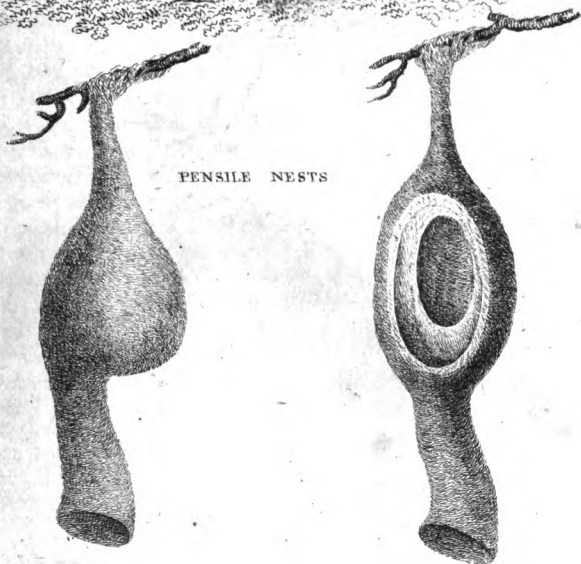


FLY-CATCHER



WHITE WAG

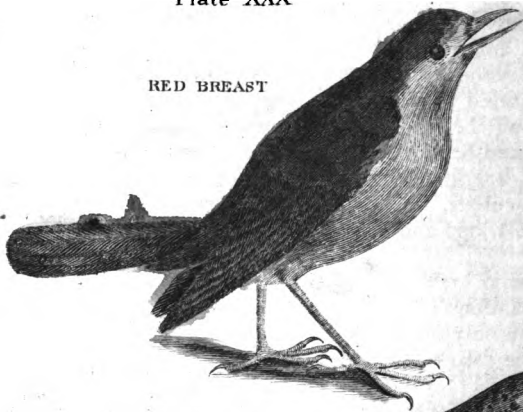
YELLOW WAG TAIL



PENSILE NESTS

Plate XXX

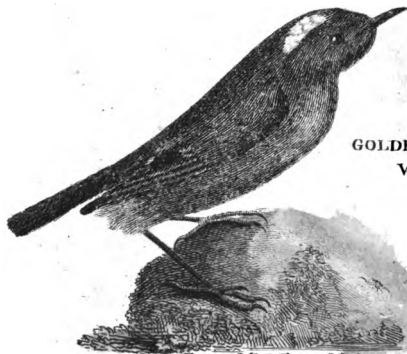
RED BREAST



HEDGE SPARROW



GOLDEN HEADED
WREN



From M^r. Wiers Museum

Bougo F.

seldom seen; they form their nests of oak leaves, and a few bents and reeds; the eggs are of a deep brown. When the young ones come first abroad, the old ones appear irritated at every approach, and pursue the passers along the hedge with a plaintive and jarring noise. The head and back are pale tawny, dashed with olive; the throat, breast, and upper part of the belly, of a light glossy ash-colour, the lower part of the belly almost white; the wings and tail of a tawny red.

The REDBREAST (Pl. 30.) during the inclemency of winter, abandons the woods, and seeks the protection of man. Not only does he approach the house of the farmer, but he calls at the window for assistance; he picks up the crumbs that are thrown to him, and, if he be not discouraged, he enters and enjoys the warmth of a cover; but his familiarity is never without apprehensions and in spring he takes an early leave, and resumes his rural retreat in the woods. Here he chooses for himself a district, where he does not patiently admit of neighbours, particularly those of his own species. Redbreasts are thus perpetually at war among themselves, however sociable they may appear with mankind. The song of the redbreast is singularly beautiful. His notes are soft and melodious, and occasionally swell with very touching expression. It is the more valuable, as we frequently enjoy it in the winter and early in the spring, when he retires to the neighbouring planting, and seems to repay with a song, the hospitality of his friends. The redbreast builds its nest at the foot of shrubs, or in the hole of a wall, of oak leaves, and moss, lined with feathers. His forehead, throat, and breasts, are deep orange; the head, back, and tail, are of a deep ash-colour, tinged with green.

The HEDGE SPARROW (Pl. 30.) has a sweet plaintive note, which it begins in the first frosty mornings, and continues for some time in spring. It frequents low hedges, especially those of gardens, where it builds and lays four or five eggs, of a fine pale blue colour. It is generally of a deep brown, mottled with ash-colour; the belly of a dirty white.

The common WREN frequents copses, and the lower branches of woods in the neighbourhood of villages, which it approaches, and where it is frequently seen hopping on the tops of walls and heaps of firwood, among which it disappears in a moment. It remains not, however, long concealed, but it again appears, making quick and inconstant movements with its tail, which it carries always in an almost perpendicular direction. Thus, it spends the day in activity, and towards the evening expresses its happiness in cheerful and well toned notes. Its song, which is remarkably articulate and lively, is continued through the winter, and is often heard with singular effect, during a fall of snow that obscures the bush that conceals it. Its flight is very short, and its wings move with such rapidity when it flies, that they become invisible. The wren builds a very curious oval nest, with a hole in the middle, no bigger than to admit its body, and lays from ten to eighteen eggs; these are generally all productive; and the young are so carefully attended to by the old ones, that not one of all the numerous family is ever neglected, though, owing to the form of the nest, and its situation under a bank and among the roots of trees, it is nourished wholly in the dark. The wren is about three inches and a half long; the whole plumage is transversely barred with undulating lines of brown and black; on the lower parts it inclines to grey.

The golden crested WREN (Pl. 30.) is the least of British birds, and is distinguished by a beautiful scarlet mark on the head, bound on each side by fine yellow. It is found as far north as the Shetland isles. It is observed, that it sings while suspended in the air over a bush or flower,; and that its song is very melodious, weaker, but resembling, that of the common wren.

As an appendage to the history of British singing birds, we subjoin a table of their comparative merit, formed by Mr Daines Barrington, 20 being supposed the point of absolute perfection.

	Mellow- ness of note	Sprightly notes.	Plaintive notes.	Compass.	Execution.
Nightingale, - - -	19	14	19	19	19
Skylark, - - -	4	19	4	18	18
Woodlark, - - -	18	4	17	12	8
Titlark, - - -	12	12	12	12	12
Linnet, - - -	12	16	12	16	18
Goldfinch, - - -	4	19	4	12	12
Chaffinch, - - -	4	12	4	8	8
Greenfinch, - - -	4	4	4	4	6
Hedge sparrow, - - -	6	0	6	4	4
Siskin, - - -	2	4	0	4	4
Redpoll, - - -	0	4	0	4	4
Thrush, - - -	4	4	4	4	4
Blackbird, - - -	4	4	0	2	2
Robin, - - -	6	16	22	12	12
Wren, - - -	0	12	0	4	4
Reed sparrow, - - -	0	0	0	2	2
Black cap, or Norfolk } mock nightingale. }	14	12	12	14	14

MANAKIN. *Genus 51.* **M**ANAKINS (Pl. 31) belong to the warm climates of America, and the East Indies, and are birds of excellent song.

TITMOUSE. *Genus 52.* **T**HIS little family are remarkably active and lively, but are furious and irascible among themselves; they are perpetually running up and down the bodies of trees, in quest of insects; and are extremely destructive in orchards, where they destroy the buds of trees. All the European kind of titmouse are found in Britain. The great **TITMOUSE** or **OXEYE** (Pl. 31.) builds in trees, and lays ten eggs. The head and throat are black; the cheeks white; the back is green; the belly yellowish and black in the middle; the rump is bluish grey, the wings are dusky, neatly marked with blue and white.

N.

The blue TIRMOUSE breeds in the holes of walls, and lays twelve or fourteen eggs. It is a beautiful species; the crown of the head is a fine blue; the wings and tail are blue; the cheeks are white; the back is yellowish green, and the lower side of the body yellow.

SWALLOW. *Genus 53.* **S**WALLOWS are so familiar to the eyes of every one, while they skim along the meadows, or nestling under the eaves, or in the chimneys of houses; their assembling together in vast groups in autumn, and their total departure, with their regular return in the spring, is so obvious, that the curious could not fail to inquire for their winter retreat. The departure was general throughout Europe, and it was natural to suppose, when insects on which they feed became scarce on the approach of winter, that they sought abundance of provision in warmer regions; but, in the countries where they breed, vast numbers were occasionally discovered huddled together in the hollows of old trees, in rocks, and in sand banks: these could be recovered to activity on the application of heat, and gave sufficient proof that many of them remained in a state of torpor during the winter, and accounted for the appearance of those stragglers that had been observed in this season, during fine weather; and which, no doubt, gave rise to the proverb, that "one swallow does not make a summer." On the other hand, it is now known, that innumerable flights of swallows arrive in Senegal from Europe, in the month of October, and the return of perhaps equal numbers is also sufficiently established. The following is the testimony of Sir Charles Wager: "Returning home in the spring of the year, as I came to founding in the channel, a great flock of swallows came and settled on all my rigging: every rope was covered; they hung on one another like a swarm of bees; the decks and carving were filled with them. They seemed almost famished and spent, and were only feathers and bones; but being recruited with a night's rest, took their flight in the morning." From these circumstances it may be concluded, that the greatest number of swallows migrate,

Plate XXXI

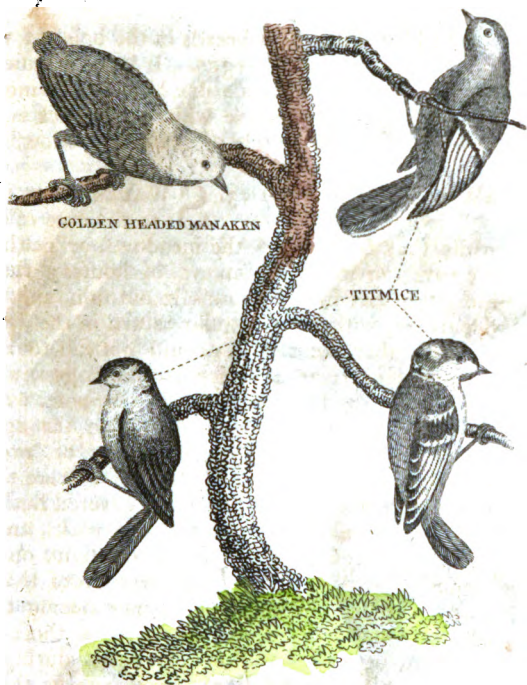
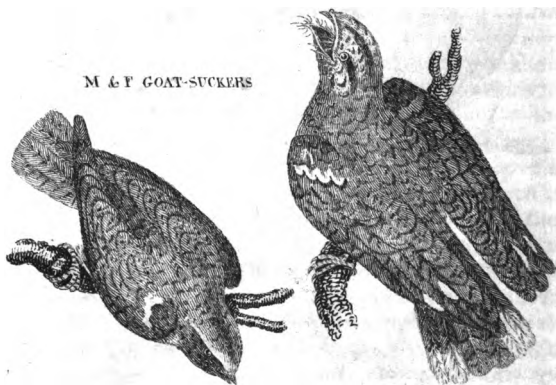
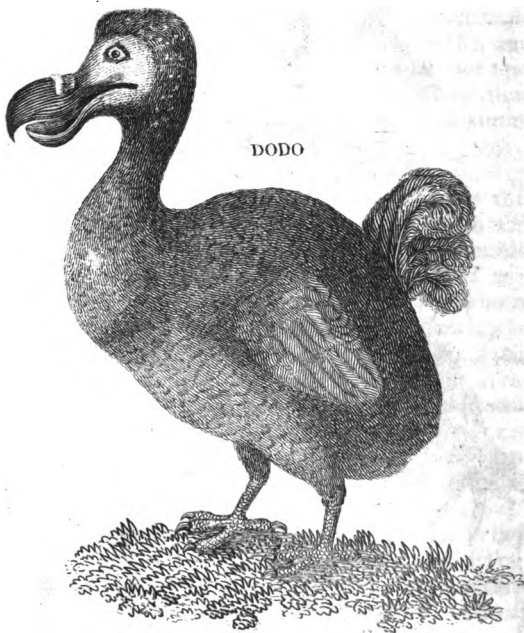


Plate XXXII.

M & F GOAT-SUCKERS



DODO



but that a part, and these probably the later batches, remain in winter quarters nearer home.

The house SWALLOW (Pl. 31.) appears in Britain about twenty days before the martin. It has two broods, the first of which is observed to quit the nest the last weeks in June, or the first in July, and the other towards the middle or end of August. It builds in chimneys, about five or six feet from the top; the nest is made of clay, mixed with straw; it is open above, and contains from four to six white eggs, speckled with red. The young ones, when they emerge from the nest, are fed by the parents for some days on the chimney top; they afterwards reach some leafless bough, where they sit in rows and receive their food, and even when they take wing, they are fed for some time by the old ones, whose motions they attend, meet them in the air, and receive from their mouths the flies which are caught for them. The house swallow has its tail more forked than any other species. It is all black, glossed with a rich purple blue, except the belly, which is white, and a red spot on the forehead, and under the chin. It has a sweet note, which it emits in August and September from the tops of houses.

The MARTIN is less than the house swallow. Like it, it builds a curious nest of clay and straw; it is, however, covered above; it has a hole in the side for admittance, and it is generally fixed under the eaves of houses. Its second brood has been observed to come forth so late as the 28th September. The head and upper part of the body is black glossed with blue; the belly white.

The sand MARTIN builds in sand banks, where it digs holes to a great depth. It is less than the martin. The upper part of the body is mouse-coloured; the throat is white, encircled with a mouse colouring.

The SWIFT (Pl. 31.) is the largest that visits this country. It breeds under the eaves of houses, in steeples, and other lofty buildings. It is of a dark sooty colour, except the chin, which is marked with a white spot.

GOATSUCKER. *Genus 54.* **T**HE GOATSUCKER (Pl. 32.) is nearly allied to the swallow. It differs principally in having an undivided tail, and in the time of feeding, which commences about sun-set, and continues all night. It has been called, not improperly, a nocturnal swallow. It has a wide mouth, a small bill, and short legs; like the swallow, it also preys upon the wing, but feeds on moths, beetles, &c. Like other nocturnal birds, it is dazzled with day-light. In Britain, it appears not till the end of May, and remains only till the end of August. Its nest is simply a hollow in the bare ground, where it lays two eggs. It is said, however, to be as attentive to its young, as if greater preparations were made for their comfort; for on the appearance of danger, the parents carefully roll them with their wings to a more secret hole. The colours of the goatsucker are plain but elegant, being a beautiful assemblage of black, white, brown, and grey, disposed in bars, streaks, and spots.

END OF VOLUME FIRST.



THE
CABINET;
OR A
NATURAL HISTORY
OF
QUADRUPEDS, BIRDS, FISHES,
AND INSECTS.

ILLUSTRATED
WITH COPPERPLATES.
EXHIBITING
FIGURES OF ABOVE SEVEN HUNDRED ANIMALS.

IN TWO VOLUMES.

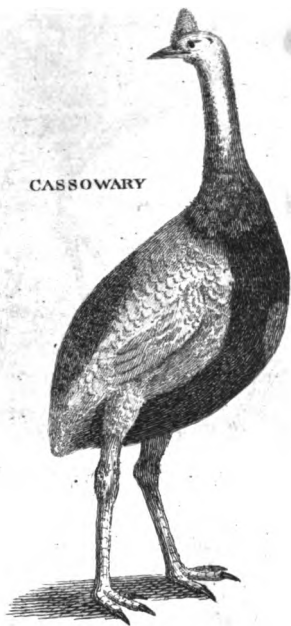
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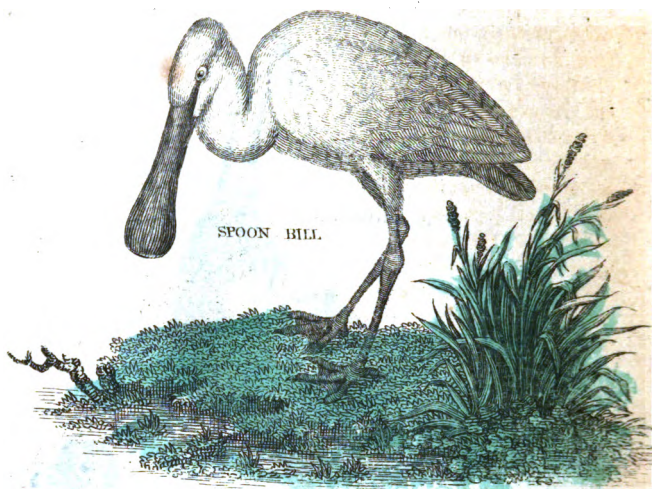
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1801.

Plate XXXIII

CASSOWARY



BLACK OSTRICH



NATURAL HISTORY

OF

BIRDS.

ORDER VI.—STRUTHIOUS.

OSTRICH. *Genus 55.* **A**MONG quadrupeds we noted departures from their general character of running upon four feet, a similar departure is exhibited in the OSTRICH (Pl. 33.) among birds, if the power of flying be considered as their distinguishing attribute. The ostrich is indeed supplied with wings, which are furnished with long feathers, but these are of so soft a texture, that they cannot even add to its velocity in running; they are totally useless for flying. Unlike the feathers of other birds that have the vanes connected in a strong web, the ostrich-feather has its vanes separated into fibres as distinct from one another as hairs, and as soft as threads of cotton. It is for these beautiful feathers, seemingly so useless to itself, but which the vanity of dress has rendered so valuable to man, that the innocent ostrich is pursued through the burning deserts of Africa with the most unwearied labour. For this purpose the Arab trains his fleetest horse, and goes in pursuit of the ostrich, which is the swiftest of all animals; he cannot, indeed, hope to run him down; but when it is in view, he puts his horse to a gentle gallop, and follows with the view of preventing it

Vol. II.

A

from feeding, without pursuing so close as to drive it to mountains. The foolish bird, instead of running off in a direct line, takes its course in circles, and the hunters, who follow in a lesser course within, are able to relieve one another, and pursue him for two or three days together, when he is completely exhausted with fatigue and famine. The ostrich may be mounted, and has strength to carry a man, but is completely untractable. It so obstinately persists in a circuitous tract, that it cannot be taught to travel in a straight line; and the ostriches, that were mounted at Podore, scampered several times around the village, but could only be stopped by barricading their passage. The ostrich is the most voracious of all animals, and is so much under the necessity to fill its stomach, that it swallows stones, wood, brass, iron, or leather, as readily as vegetable substances, which are probably its natural food. In the torrid regions, the female ostrich lays her eggs in the sand, where she leaves them, slightly covered, to the heat of the sun; but she regularly returns and broods over them during the night: and in colder countries, toward the Cape, the male and female alternately sit upon the eggs, and give every demonstration of affection for their young. These circumstances it is more necessary to mention, because, to its other traits of stupidity, the ostrich was represented as the most unnatural parent. The ostrich is generally seven, and frequently ten, feet high; the thighs, which are remarkably strong, the sides and under part of the wings, are naked; the neck, back, and belly, are covered with short feathers. The plumage is uniformly of the downy structure already described, and is generally black and white.

The CASSOWARY (Pl. 33.) in the body, is about the size of the ostrich, but its neck and legs are shorter. It is generally about five and a half feet high. It is armed on the head with a horny substance, which reaches from the base of the bill to the crown, about three inches high, and has the appearance of an helmet; its eye is bright yellow, and its upper eyelid is furnished with a row of black hair; the wings are pointed with five strong quills; the feet are supplied with large black

claws, and the general form being clumsy and strong, the cassowary has a fierce and menacing appearance, though its disposition is perfectly peaceable and inoffensive. The feathers that cover the body are mostly double, having two shafts that grow from a short trunk, which is fixed in the skin. The beards that compose the vanes, are so separated, that they fall down on the back, rather like hair than feathers. It has the voracious appetite of the ostrich, and is a native of the East Indies.

DODO. *Genus 56.* **T**HE Dodo (Pl. 32.) is peculiar to the isles of France and Bourbon. Buffon has indulged in a very hideous description of it. He represents it as a perfect deformity, not only incapable of flying, but so oppressed with its own weight, that it has hardly sufficient strength to drag itself along; that, like the sloth among quadrupeds, it seems to be formed of some rude and ill-organised matter, into which the principles of life are sparingly infused; that its physiognomy is stupid and voracious; that it has wings that are useless; that it has a tail that is disproportioned and out of its place; and that one might take it for a tortoise that muffled itself up in the skin of a bird. The dodo is undoubtedly clumsy and disproportioned in its form; but travellers have mentioned it without disgust, and the Solitaire, which has so near an affinity to the dodo, that it is doubtful whether it be not the same species, has been represented as a beautiful bird. The head is large, and seems to be covered with a black hood or cowl; the bill is strong, large, and hooked, the gape stretches beyond the eyes; the plumage is soft to the touch, and the general colour is cinereous; the belly and thighs are whitish. It has a voracious and indiscriminating appetite, and is larger than a swan.

ORDER VII.—WADERS.

SPOONBILL. *Genus 57.* **T**HE SPOONBILL (Pl. 34.) has its name from the structure of its bill, which widens towards the

end in a circular form resembling a spoon: the substance has a resemblance to whalebone, and is thin, light, and elastic. Spoonbills build their nest on high trees, near the sea shore, and are as noisy as rooks. They feed on fish, and devour frogs and snakes. They are rarely seen in England, but are found from the Ferro islands to the Cape of Good Hope. The European spoonbill is about three feet high, the plumage is white, and the bill black. In America, there is a species somewhat smaller than the white kind, that is deep crimson, and another that is brown, and about the size of a sparrow.

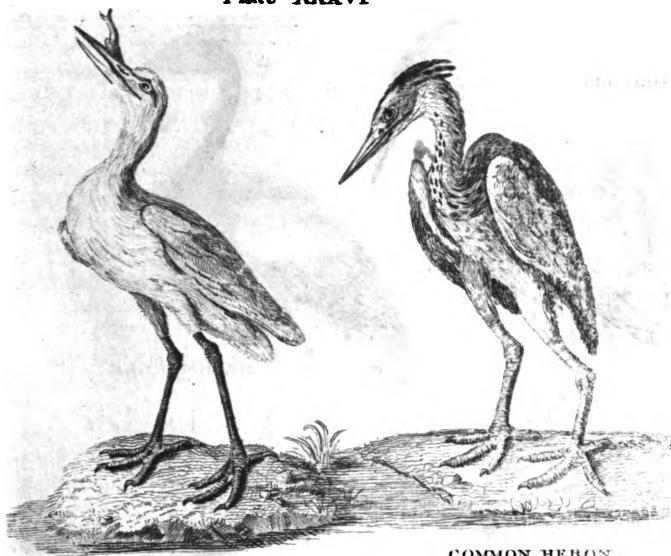
SCREAMER. *Genus 58.*

JABIRU. *Genus 59.*

BOATBILL. *Genus 60.* **T**HE BOATBILL (Pl. 37.) is about twenty-two inches long, and is furnished with a broad flat bill, which rises in a ridge on the upper mandible, like a boat reversed. It is of so hard a substance, and so sharp in the edges, that if the dispositions of the boatbill were not peaceable and gentle, it would prove a formidable enemy to other birds. It inhabits South America. It feeds on fish, and chiefly frequents the banks of marshes and rivers, where it perches on the shrubs that overhang the water, from whence it plunges on its prey. There are three species, the grey, the brown, and the variegated, which nearly resemble one another, both in economy and external form.

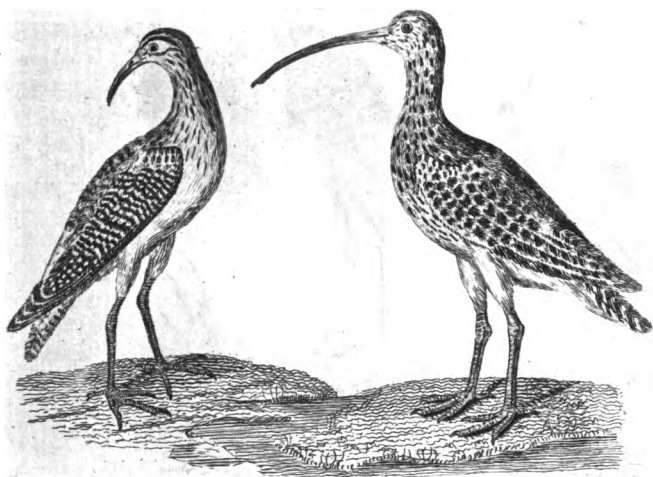
HERON. *Genus 61.* **T**HIS numerous tribe supplies, to almost every country in the world, a peculiar species, who all agree in their manner of feeding upon fish, and who, in pursuit of their food, are subject to the most incessant toil, and frequently to the most cruel abstinence. As they do not dive in deep waters, but wade through marshes and pools, which are frequently frozen during winter, they are condemned to suffer hunger, which must be fatal to multitudes; and this is apparent, from the scarcity of the birds in comparison with the vast numbers produced.

Plate XXXVI



WHITE HERON

COMMON HERON



WHIMBREL

CURLEW

Plate XXXV

ASH COLOURED HERON



DEMOISELLE



BITERN OF HUDSON BAY



BRASILIAN BITERN



Even when the weather is fine, and they wallow in abundance, their misery is not abated, for their digestive powers are so strong, that, though they are gorged with an amazing load of food, they are quickly in a situation for a new supply. No quantity that they devour produces fat; and, though many are elegant in form, they have all of them a lean and consumptive appearance, which does not improve in plenty, and which want can hardly reduce.

The COMMON CRANE (Pl. 34.) migrates in prodigious numbers, from the warm regions of Egypt and India, to the north of Europe and Asia, and even as far as the Arctic Circle, where they are recognised as a certain symptom of the approach of summer. In their migrations, though they fly so high that they are frequently invisible, they are known by the noise of their flight, which is louder than that of other birds. In France they are seen in Spring and Autumn, but, for the most part, merely as passengers. They were formerly natives of Britain, and were under the protection of the laws, when hawking was the amusement of the gentry; twentypence being the penalty for destroying a single egg. The crane is six feet in length, and weighs ten pounds. The body is ash-coloured, the fore part of the breast and quill feathers are black.

The DAMSEL. (Pl. 35.) Gentleness of manners, neatness of dress, the faculty of imitating motions, and even of dancing, with a certain regard to time, has procured this species its present appellation. The story of a monkey who cut its throat in imitation of an arch enemy, who, in the course of thaving, took an opportunity of frequently drawing the back of the razor along his own, is almost equalled in what was formerly recorded as the mode of catching this bird. The sportsman having water prepared in a vessel, washes his eyes with it in view of the crane, and, after having mixed it with glue, he retires. The crane, in the pride of its imitative powers, presently follows his example, washes its face most curiously with its toes, and was thus completely deprived of the means of escape. Two tufts of white

feathers hang down on each side of the head, and form a kind of head dress for this elegant bird, while a mass of long, soft, and silky feathers, of a beautiful black, covers the fore-parts of the neck and breast. The back, rump, tail, and under part of the breast, are ash-coloured. It is found in many parts of Asia and Africa; and one that was kept at Versailles, where it was bred, is said to have lived 24 years.

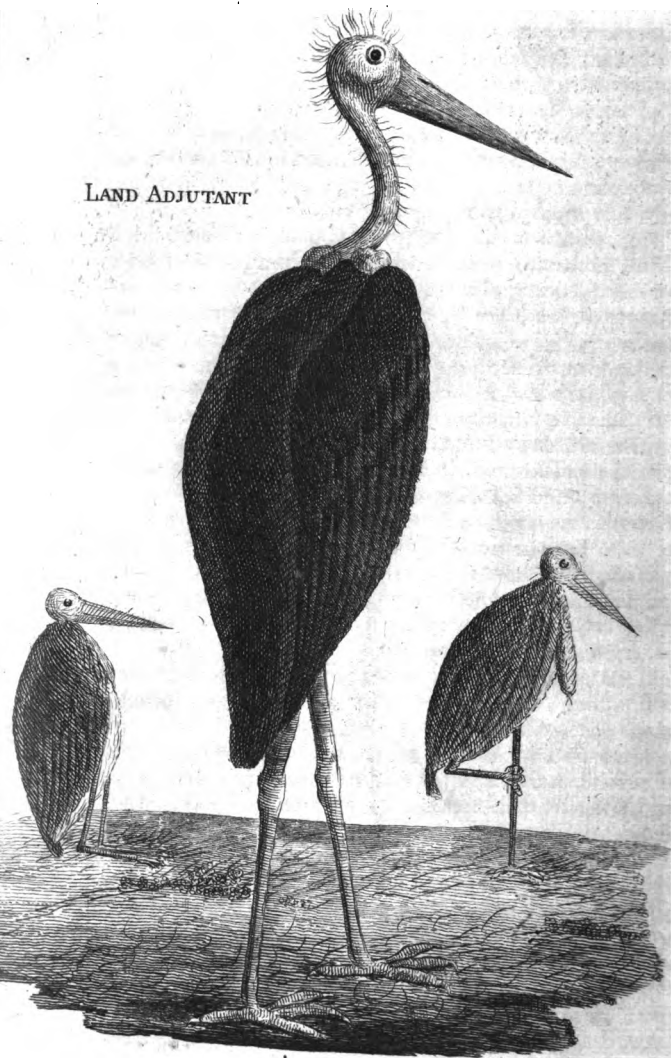
The COMMON HERON (Pl. 36.) was a favourite object of pursuit when hawking was the diversion of our ancestors, and her eggs were protected by severe penalties. The lightness of this bird, in proportion to its size, is so remarkable, that it weighs little more than three pounds, though above three feet in length, and five in breadth. It is very destructive in fish ponds. It builds in high cliffs over the sea, but most frequently in lofty trees; and, like the rook, is commonly found in very large colonies. At Cressi Hall, in Lincolnshire, Mr Pennant counted above eighty nests in one tree. They are made of sticks, lined with wool, and contain five or six large pale green eggs. The heron is said to be very long lived; and, in a recent instance in Holland, where one was taken by the Stadholder's hawks, it was found, by a silver plate on its leg, that it was struck by the Elector of Cologne's hawks nearly forty years before. The head and neck are white; but a pendant crest of black feathers adorns the hind-part of the head, and the fore-part of the neck is spotted with black; the body is ash-coloured.

The BITERN (Pl. 35.) in England is a very retired bird. It conceals itself among reeds and rushes, from whence it can hardly be provoked to flight. Its flight is so heavy that it has been distinguished by the epithet of *laxy*; but what is peculiar to it, is its mode of rising in the air, which is in a spiral form: This it does chiefly in the dusk of the evening, and continues to ascend, making, at the same time, a singular noise, till it is quite out of sight. It is less than the heron, of a pale dull yellow, spotted, barred, or striped with black.



FLAMINGO

LAND ADJUTANT



To this class belongs a bird, called in Bengal the Land Adjutant, of which, through the favour of Dr Howison, this work is enriched with a valuable original article, in the annexed figures, (2d Pl. 36.), and the following descriptions.

The LAND ADJUTANT is the largest of all birds capable of flight, has derived its English name from its stately walk, much resembling that of an adjutant giving the step to his corps. It weighs from 25 to 30 pounds weight; from the ground to the crown of the head four feet seven inches, to the top of the shoulder three feet four inches, across, from pinion to pinion, seven feet eight inches, length of the legs two feet, of the bill one foot two inches, circumference at its root ten inches. Bill of a dusky green, weak, straight, and sharp; upper mandible compressed on the sides, and running up to a ridge; nostrils large, and placed in a longitudinal furrow; crown of the head bald and horny; the bases of the upper and lower mandibles are covered with a dirty yellowish loose skin, which extends round the chin, mouth, and eyes: The back part of the head, as also the neck, is of a flesh colour, and thinly covered with black bristles: Between the neck and shoulders is a fine transparent crimson coloured membrane, which the bird can inflate at pleasure, and which, being bound down in the middle, has then the appearance of a blown bladder upon each shoulder; immediately under this, and connected with the lower part of the gullet, is a muscular pouch, which, when empty, contracts so as nearly to disappear, but, when filled with food, is upwards of a foot in length, and about two inches in diameter; it is of a flesh colour, and entirely naked, unless a few hairs inserted in its most depending part. The lesser coverts, and back are of a purplish blue; the greater coverts of a dusky brown; quill feathers and tail black; breast and belly white; legs very slender and black, with four toes on each foot, placed as in the common fowl; ears large and open; orbits naked, of a dirty green; eyes full and black; tongue deep-seated, triangular, and remarkably small. These birds frequent Bengal during the rainy season; have the senses of smell and sight in great perfection; and, from their number and voracity, are ex-

trremely useful in devouring dead animals, which, from the great heat and moisture of the climate, would otherwise become highly noxious. As, from the weakness of their bills, they are incapable of breaking the skin of the larger animals, they are generally seen forming a circle round the carcase until that has been performed by the vultures, who are then obliged to yield their station to the superior strength of the adjutant. Besides carrion, they feed upon frogs and snakes. Of their mode of attacking the latter I have been an eye witness, and which is conducted with a surprising degree of caution. They walk round the snake in a circle at a sufficient distance to be beyond the reach of his spring, until a favourable opportunity offers by his moving off, for darting in upon him. The adjutant then seizes the snake by the neck, gives him a severe shake, throws him from him, and then retires. This he repeats when there is an opportunity, until he kills the snake, which he immediately swallows. In the instance which fell under my observation, it required more than half an hour before the adjutant could accomplish his purpose. There have been many instances of this bird, when disturbed, flying off with the snake before it had completely killed and swallowed it; and of the snake, while in the air, twisting its tail so hard around the throat of the adjutant, as to bring him, from a great height, senseless to the ground. From the great length of his legs, the adjutant is incapable of folding them under him, like other birds; so that he must either sit upon the first joint, or by standing on one foot and grasping the knee with the toes of the other. The adjutant migrates in the beginning of the dry season, but to what place is uncertain. He has, I believe, never been known to breed in Bengal. The one from which I took the drawings (2d Pl. 36.) and description I brought as far as the Cape of Good Hope, where he was killed by the great motion of the ship. I fed him upon the entrails of sheep and fowls, and had little doubt that he would have reached England had the weather been moderate.

WATER ADJUTANT OF BENGAL; OR, SHELL BIRD OF MALAYS. This bird, in its general appearance, is very

similar to the land adjutant, but considerably smaller. It, however, differs from it, in neither having the pouch or crimson coloured membrane. The head and neck are likewise of the same dirty green as the bill, and not of the flesh colour of the land adjutant. The vent feathers of this bird are white as snow, and of a beautiful fleecy texture; and so much esteemed by the ladies as an article of head dress, that they pay a duty of four guineas per ounce on importation. I have known this bird to breed at Prince of Wales's Island. It builds upon trees, lays only one egg, feeds upon fish, and is easily tamed.

UMBRE. *Genus 62.* (Pl. 37.) **T**HE manners of this tribe are wholly unknown. It inhabits Senegal. The plumage is of a brownish grey.

IBIS. *Genus 63.* **T**HE IBIS was formerly held in such veneration by the Egyptians, for the service it performed in freeing the country of serpents and other noxious animals, that its figure was wrought on monuments, its body was embalmed, and divine honours were paid to it by the superstitious inhabitants. Two species, the white and the black, were known to the ancients. In figure it resembles the heron, with the bill of the curlew.

CURLEW. *Genus 64.* (Pl. 36.) **C**URLEWS, in most places of Europe, are birds of passage; but in Britain they remain the whole year, though they change their situation. During winter they are found in marshes, or they parade the open sands of the sea shore in great flocks. In summer they retire and pair in the mountainous and unfrequented parts of the country, where they breed. Their eggs are pale olive, marked with spots of brown. In America, curlews, after their third year, become of a bright red; and, as they assemble in great numbers, they have a singular effect amidst the woods. Their society seems to admit of different ranks; and the young, dressed, as they are, in a less gorgeous apparel, are not allowed to associate with the old. The curlews, with us,

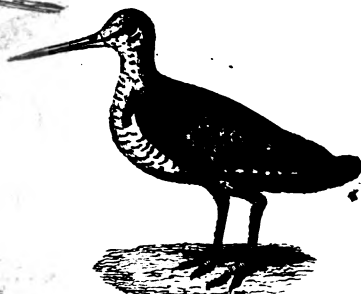
is seldom two feet long, the bill is seven inches; the head, neck, and coverts of the wings are pale brown, the middle of each feather black; the back, breast, and belly are white, marked with black lines. It feeds on frogs, crabs, and insects.

The WIMBREL (Pl. 36.) in its haunts, food, and general appearance, resembles the curlew; the specific difference is the size, for, where the curlew weighs thirty, the wimbrel weighs only twelve ounces.

SNIFE. *Genus 65.* **W**HILE the heron, by the length of its legs, is qualified to wade through considerable streams, its long neck enables it to search for its prey without immersing its whole body. The numerous family of the snipe, which possess not the same proportions, are induced to different habits, they are not remarkable for long legs, but they are yet well qualified to wade through wet and miry ground; and, instead of a long neck, they are supplied with long slender bills; with these they perforate the mud in search of worms and insects, which they seize with unerring security, and without the assistance of their eyes, their bills being furnished with nerves of exquisite sense and smell. Of the whole tribe which are migratory, the Woodcock (Pl. 38) is perhaps best known, and there is none that is held in greater respect by the sportsman. The Summer's residence of the woodcock is the mountainous regions of Norway and Sweden, where they breed and rear their young; though many of them linger all Summer and breed in the Alps of Switzerland, and in the intermediate mountains of Polish Prussia and Brandenburg. On the approach of Winter they leave their native haunts, and gradually spread themselves over the southern parts of Europe. They fly during the night, or in misty weather and they arrive in England in greatest numbers during the month of November. In Scotland they are far more numerous on the east coast, where they arrive, than in the west, their progress being gradually from the east, till they become very rare in the remote Hebrides. Upon their first arrival they are so much exhausted with their long flight, that they are



REDSHANK



WOOD-COCK



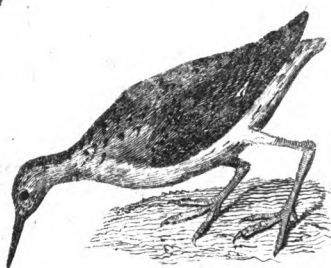
JACK SNIFE



RED GODWIT

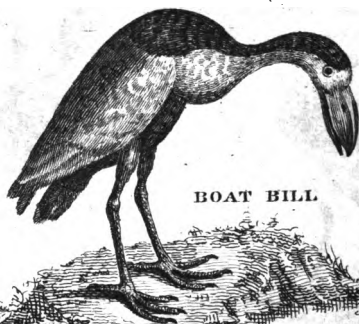


SNIFE



REEVE

Plate XXXVII



BOAT BILL

WHITE REDSHANK



WHITE GODWIT



UMBRE



SPOTTED PLOVER



RED-BREASTED GODWIT

sometimes taken with the hand. They arrive not in flocks, but separate, and continue in a dispersed state till the month of March, when they flock towards the coast, and hold themselves in readiness for their departure. If the wind, by which their flights are regulated, be in their favour, they suddenly disappear; but, if they be detained with contrary winds, they then lurk in the neighbouring woods, or among the ling and fern on the coast. At this time there is such a harvest for the expert sportsman, that, in Suffolk, seventy brace have been killed by one person in a day; if, however, they be long detained on the dry heath, they become so lean, that they are hardly worth pursuing, and less worth eating. In the colder districts of Burgundy a small number reside during the Summer, and the neighbourhood of Tunbridge in England a few breed almost annually. Their nests are carelessly constructed of twigs and withered grass, and contain four or five eggs, about the size of a pigeons, of a brownish grey colour, marbled with darker spots. They are so remarkably tame, during the time of incubation, that they may be approached in the nest, and even stroaked with the hand. The young ones run about as soon as they leave the shell, and fly when their wings are but barely feathered. The woodcock is about fourteen inches long, the upper part of the body is prettily barred with ferrigenous red, black, and grey; the under part is of a dirty white, marked with transverse lines of a dusky colour.

The *Goodwit* (Pl. 37.) appears in this island in September, and continues the whole Winter. It is taken in the fens of Lincolnshire, and fattened for the London market with bread and milk, hempseed, or boiled wheat; to which is added, if expedition is required, a little sugar. In the space of a fortnight they are quite fat, and sell, according to their size, from two to five shillings. The *Common Goodwit* is about sixteen inches long, the bill turns a little upwards, on the upper part of the body it is of a light reddish brown. The *Red Goodwit* is more rare in England, and is rather of a smaller size.

The RED SHANK (Pl. 38.) has longer legs than most others of this genus, of a fine bright orange colour. It breeds in our fens and marshes, and lays four whitish eggs, tinged with olive, and marked with black spots.

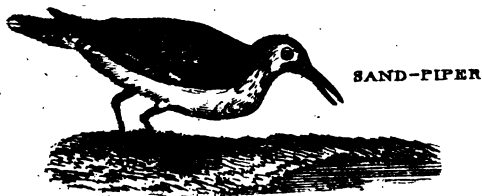
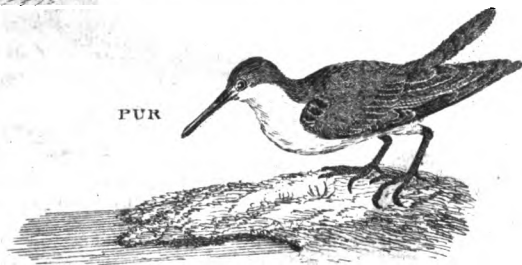
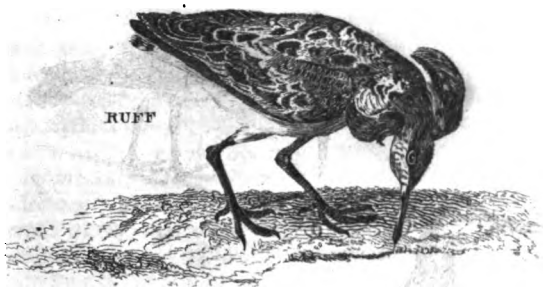
The SNIPE (Pl. 38.) is found in all climates, and in every quarter of the globe. It is doubted whether it ever leaves England; at any rate, a great number remain, and resort to the higher grounds, during summer, where they breed. They feed, like others of this tribe, on insects, which they suck from the soft and spongy grounds. They are seldom exposed to observation, as they are commonly concealed among reeds and rank grass; but, when they are sprung, their flight is so rapid and irregular, that the shooting of the snipe is a matter of still greater difficulty than that of the woodcock. It is about twelve inches long, the upper parts are pale brown, beautifully barred and spotted with white and red, and yellow.

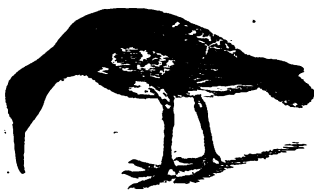
The JACK SNIPE (Pl. 38.) is less than the snipe, and not so common in this country. It is of a heavier flight, and so difficult to be found, that it will hazard to be trod on before it will run. Of this genus twelve species are described by Pennant.

SANDPIPER. *Genus* 66. **T**HERE are eighteen species of this tribe found in England. Most of them frequent the sea-shore; and, from their whistling and piping note, the genus has procured its name. They principally differ from the snipe kind in having shorter bills; but, in their food, and manner of living, are nearly the same.

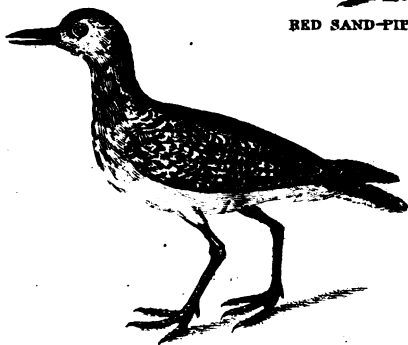
The RUFF, (Pl. 39.) whose name, from the long feathers on the neck, sufficiently characterizes the species, is only the appellation of the male, the female is named the REEVE, (Pl. 35.) and is uniformly, in the upper parts, pale brown spotted with white and black, while the colours of the ruff admit of such variety that no two are ever found alike. They are found in the fens in the earliest part of spring. Soon after their arrival the

Plate XXXIX

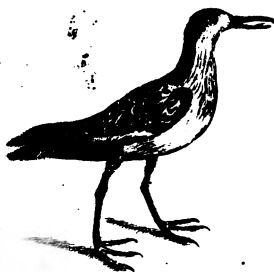




RED SAND-PIPER



GREEN PLOVER



SANDERLING



DOTTEREL

males begin to *bill*, that is, being collected on a dry bank, near a splash of water, in expectation of the females, who resort to them, every male takes possession of a small piece of ground, which he runs round till the grass is worn away, and nothing remains but a bare circle. If any one approach the circle of his neighbours, he is instantly attacked, and a battle ensues; and, for this reason, when a female alights among them, and attracts the ruffs from their stations, those who are encroached on turning upon the invaders, occasion a feud, that, in a moment, becomes general and fierce. The ruff fights like the common cock; he places his bill to the ground, spreads his ruff, and springs on his opponent. Great numbers are caught in Lincolnshire, the Isle of Ely, and east riding of Yorkshire, and fattened for the table. They are dressed, like the woodcock, with the intestines; and, when killed at the critical moment, say the epicures, are the most delicious of all morsels.

The GAMSET (Pl. 39.) is rare in England. It is cinnamon brown, spotted with yellow, the belly white.

The COMMON SANDPIPER (Pl. 39.) is very numerous in England, and has a louder and more piping note than others of this tribe. The back and wings are brown, mixed with glossy green; the breast and belly are pure white.

The PURRE. (Pl. 39.) During the winter these birds appear on our coasts in such prodigious numbers, and they perform evolutions in their flight with so great regularity, that they appear like a white or a dusky cloud, as they turn their backs or their breasts towards the spectator. The head, neck, and back, is ash-coloured, the breast and belly white.

PLOVER. *Genus 67.* **T**HE PLOVER, (Pl. 39. and 40.) breeds with us on unfrequented mountains; is common on those of the isle of Rum, and others of the loftier Hebrides. It makes a shrill whirling noise, and may be enticed within shot by a skilful imitation of the note. It lays four eggs of

a dirty white, marked with black blotches at one end, and spots at the other. It is a beautiful bird, about eleven inches long. The head, back, and coverts of the wings are black, beautifully spotted with light yellowish green.

The DOTTERIL, (Pl. 40.) is reckoned a foolish bird ; and, it is said, they easily fall a prey to the arts of the bird-catcher. The head is black, with a white line surrounding it from the eyes. The general colour of the body is olive, the breast and sides are dull orange. The female is larger in size, and duller in colour than the male.

The SANDERLING (Pl. 40.) flies in flocks on the Cornish shores, and is eight inches long ; the upper part of the body is brownish grey, spotted with dirty white ; the under side is white.

OYSTER-CATCHER. *Genus 68.* **T**HE limpet and oyster appear to be defended from every external attack, and to be secure of a natural death ; but when we observe the bill of the SEA-PIE, (Pl. 41.) and find how fit an instrument it is to insinuate between the limpet and the rock, or to force open the shells of the oyster, it is evident that security is not the portion of the most obscure animal ; and that nature as assiduously prevents the excessive multiplication of one class, as she guards against the extinction of another. Sea-pies or oyster-catchers are found both in the northern and southern hemispheres, and are common on the most of our coasts, where they feed on oysters, limpets, marine insects, &c. In winter they assemble in vast flocks, and are very wild, but in summer they are found only in pairs. They lay their eggs on the bare ground ; they are of a brownish white, thinly spotted, and striped with black ; they are left for several hours of the day to the heat of the sun, but they wait more assiduously on their young, and make a loud and shrill noise if they be threatened with any danger. The oyster-catcher is about seventeen inches long ; the bill is compressed, obtuse at the end, of a bright orange colour, and three inches long ; the head, neck, and

Plate XLI

OYSTER CATCHER



SPUR WINGED
WATER HEN



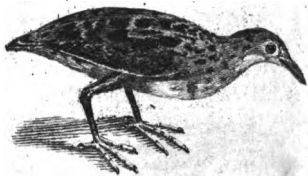
WATER RAIL



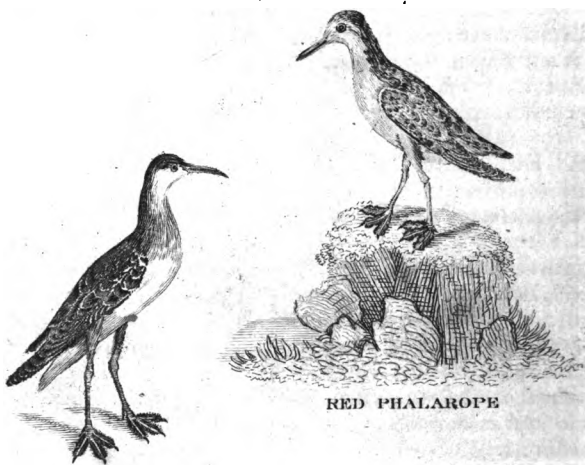
COMMON GALLINULE



Plate XLII

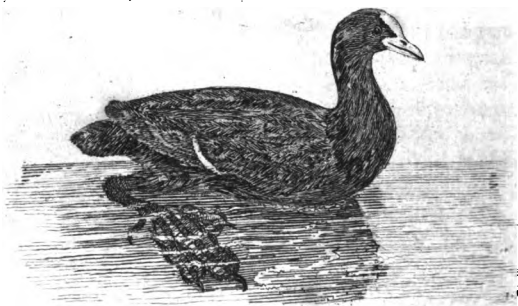


CRAKE GALLINULE



RED PHALAROPE

GREY PHALAROPE



COOT

wings, are a fine black; the back, breast, and belly white.

RAIL. *Genus 69.* **T**HE water RAIL (Pl. 41.) seems to be more diffused than varied. Captain Cook found them at the straits of Magellan, and in different islands of the southern hemisphere. In most parts of Europe they are migratory; but they continue the whole year in England; they delight more in running than flying, and fly with their feet extended. These properties they have in common with the Gallinule, from which they are chiefly distinguished by the character of the bill, which, in the water rail, is slender and incurvated; the feathers of the upper part are black, edged with olive brown; the throat and breast are ash-coloured; the sides are finely varied with black and white bars.

GALLINULE. *Genus 70.* **T**HE GALLINULE or WATER-HEN, has a straight conical bill, which extends up the forehead; it flies with its feet hanging down, and delights less in flying than running. It is not so familiar with the water as the following tribes that are fin or web-footed; but it frequently traverses its surface, where it cannot be said either to fly or swim; though it be capable of both.

The spotted GALLINULE, like others of the tribe, is so averse to rise, that the sportsman often seizes it with his hand, or fells it with a stick. When pursued, if it finds a bush in its retreat, it climbs upon the top of it, and from its asylum beholds the dogs brushing along at fault. It dives, swims, and even swims under water when hard pushed.

The CRAKE or LAND-RAIL, (Pl. 42.) except in the bill, exactly resembles the figure of the water-rail, and has been supposed by some to be the same bird, changing its colour at a certain season of the year. They agree in their aversion to flight, and in the habit of hanging their long legs while they are on the wing; but the crake does not frequent watery places, but hides among

corn, grafs, broom, or furze, where it is diftinguifhed by its cry, which has procured it the name of corn-crake. The feathers on the upper parts are black, edged with bay; the belly white.

The common GALLINULE or MOOR-HEN, (Pl. 41.) has the under part of its toes fo broad and flattened, that it feems to connect the cloven-footed with the fin-toed water-birds. It builds in low trees and shrubs by the water fide, and lays feven eggs; the young are fo soon independent of the mother, that fhe is enabled to rear two, and fometimes three, families in a feafon; the female is fmall and lefs brilliant in colour than the male, who is beautifully gloffed on the head, neck, back, and wings, with a deep olive green. It is about fourteen inches long.

FIN-FOOTED.

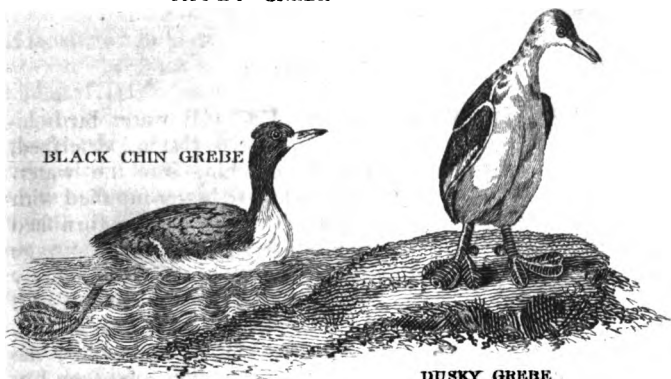
PHALAROPE. *Genus 71.* **T**HE water birds hitherto described, have all been incapable of launching into the water. Thofe which we now approach, are better fupplied with requifites for fwimming. Their toes, which are furnifhed with fins, are not fo ftrongly connected as to encourage them to lanch into the vaft ocean, but they fufficiently enable them to fwim freely through rivers and lakes. Of the PHALATHROPE (Pl. 42), or fcollop-toed fandpiper, three different fpecies are described by naturalifts, the grey, the afh-coloured, and the red. They are found in Lapland and Hudfon's bay. The grey and red have been found in England.

COOT. *Genus 71.* **C**OOTs (Pl. 32.) frequent lakes and ftill rivers, and are fo expert, that, without having their feet entirely webbed, almoft no water-fowl can excel them in fwimming; they are almoft continually afloat, and are, indeed, fo awkward on fhore, that they are often taken by the hand. When alarmed on the water, they fly for fhelter among the reeds, and will rather dive in the mud than take flight. They are fhy, but not eafily fcarred from the

Plate XLIV



TIPPET GREBE



BLACK CHIN GREBE

DUSKY GREBE



EARED GREBE

lake where they have been bred, and if winter compel them to change the place of their abode, they assemble in great numbers, but it is only during the shade of night that they venture on their journey. They build a floating nest among the rushes of reeds, grafs, &c. and lay five or six, some say fourteen, and in warmer countries twenty, eggs. The young, when just hatched, are very deformed. They are frequently the victims of birds of prey, who make unmerciful attacks on the whole family, and often carry off both old and young together. The plumage of the coot is wholly a deep black, except the edge of the wing, which is white; the belly is ash coloured. It is nearly the size of a hen.

GREBE. *Genus 73.* **G**REBES (Pl. 44.) frequent fresh and salt water lakes, and swim and dive with an agility that nothing can exceed, but their helpless condition on shore. Their legs are placed so far back, that they can only stand in an upright posture, in which they can neither run nor take flight, so that they fall an easy prey to the first invader. They build a nest floating and loose among the reeds and flags, which does not exclude the water. In this condition the mother sits and hatches the eggs, and is sometimes set adrift in it, into the middle of the lake.

The tippet GREBE is common in winter on the lake of Geneva. They are killed for their skins, which are dressed with their feathers on, and made into muffs and tip-pets; the breast and belly being of a most beautiful silvery white.

The eared GREBE, the black-skin GREBE, and the dusky GREBE, have their distinguishing marks expressed by their names.

WEB-FOOTED.

AVOSET. *Genus 74.* **A**MONG water-fowl, we have seen some who wade only in marshy ground, others who fish in shallow wa-

B 3.

ters, and a third kind make bolder attempts, and procure their food at some distance from shore. We now approach a race which is purely aquatic, who launch boldly into the open ocean, and who are almost independent of land. But though birds, provided with webbed feet, are in general fitted for riding and swimming on the tumultuous element, the avoset and flamingo are in some measure an exception; and, from their structure, may be considered as forming a class by themselves of web-footed waders. The AVOSET (Pl. 45.) is about eighteen inches long to the end of the tail, of which the bill is three and an half. The bill sufficiently distinguishes this bird from all others; it is thin, flexible, of a substance like whalebone, and turned up for near half its length. It appears so conveniently formed for scooping worms and insects out of the sand, that we are inclined to wonder how the use of it is confined to one tribe, till we recollect how unfit it must be for every kind of defence. The tracts in which they seek their food, is often discerned on our shores by alternate semicircular marks on the sand. They lay two eggs, about the size of a pigeons; they are greenish white, marked with black spots; the whole plumage is of a snowy white; but the head and part of the neck and wings are black.

FLAMINGO. *Genus 75.* **T**HE FLAMINGO, in the body, is smaller than the stork; but such is the length of its neck and legs, that when it stands erect, it is above six feet high; and the plumage is not less remarkable than its figure, being of a bright flame coloured red. Like other birds of extraordinary brilliancy of colour, it is a native of the tropical regions, though formerly they frequented the European coasts, and were greatly valued for the delicacy of their flesh. They are now very rare in Europe, but are found in every district of Africa, from the Mediterranean to the Cape of Good Hope; in the West Indies, and in many parts of South America. They are capable of being tamed, and live in harmony among the common poultry; but in this state they soon lose their

colour, flesh, and appetite, their natural food being small fish and aquatic insects. In a wild state, they feed in large flocks, a few being detached from the rest to announce the approach of danger; and such is the order preserved, that along the margin of the sea, or the border of a river, they appear to march in artificial lines, and at a distance exactly resemble an army in the order of battle. Their nest is a curious hillock, formed of fat earth or clay, in shallow water, where they lay their eggs, and upon which they sit as upon a stool. The young are not above three in number; they are at first of a clear grey, and do not acquire their vivid red till the third year; the beak is naked, teathed, and bent as if it were broken.

ALBATROSS. *Genus 76.*

THE ALBATROSS is so frequently mentioned by voyagers to the South Sea, that we regret this article is not accompanied with a figure. It is the largest of aquatic birds, and is often found at an immense distance from land. In high northern latitudes they arrive in vast flocks, along with shoals of fish; but it is not known if they breed there. In Falkland islands the albatross and penguin form their nests in the neighbourhood of one another, and cover the surface of the earth in thousands. The albatross has a strong bill, hooked at the point; and, though voracious, is not so fierce as the first travellers described, but is pursued and beaten by the gull. The upper parts are brown, the back is spotted with black.

*birds
caught
with a
piece
of
with a
hook.
very good
to eat
but rather
tough*

AUK. *Genus 77.*

THE GREAT AUK, (Pl. 45.) though it has wings so small that they are useless for flight, and can do little more than help it to run upon the water, is a bird of passage. It breeds in the isle of St Kilda, which it visits in the beginning of May, and leaves in the middle of June. Its residence for the rest of the year is unknown, which is not a little extraordinary of a bird whose voyage must be so slow and so awkward; but seamen, instead of describing them at sea, remark that they are certain indica-

tions of land, as they are never to be met with beyond foundings.

The **RAZOR-BILL** (Pl. 46.) appears in our seas about the beginning of February, and begins to breed in May. They inhabit the ledges of the highest rocks that impend over the sea; they sit close together in rows, and these ranging one above the other form a very grotesque appearance. They lay one egg of a large size. They are food to the inhabitants of the coasts they frequent, and are collected by the hazardous mode of being lowered by ropes from the top of frightful precipices. If one egg be taken, both the auk and guillemot will lay another, and, if that be taken, a third. They make no nest, but deposite their eggs on the bare rock; and, though multitudes lie contiguous, by a common, but in this case wonderfully apparent, instinct, every bird distinguishes its own; and Mr Pennant continues, "What is also matter of great amazement, they fix their eggs on the smooth rock with so exact a balance as to secure it from rolling off, yet, should it be removed, and then attempted to be replaced by the human hand, it is extremely difficult, if not impossible, to find its former equilibrium." This sentence is quoted, because we delight in an extraordinary story, when it happens to be true, though Mr Latham rather simplifies the description when he says, that it is by means of a cement that the bird fixes its egg. The razor-bill is eighteen inches long; the head, back, and wings, are black, a transverse line on the wings, and whole under part of the body is white.

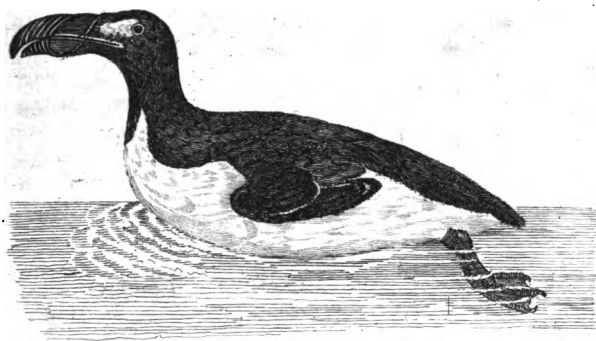
The **LITTLE AUK** (Pl. 46.) exceeds not the size of a blackbird. It is but seldom met with in Britain, but is common in Greenland. It flies quick, and dives well. Like others of the tribe its feet are of little use on land, like them it feeds on the lump-fish, feather lathers, and other small fish.

GUILLEMOT. *Genus 77.* **T**HE GUILLEMOT (Pl. 46.) has a slender pointed bill, and is another tribe whose legs are almost as useless to it on shore, as they are useful in the water.

Plate XLV

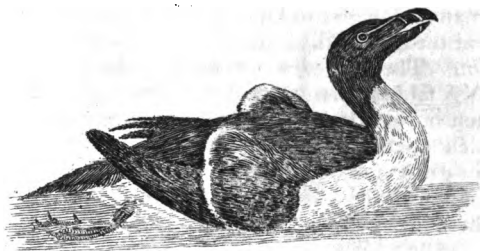


AVOCET



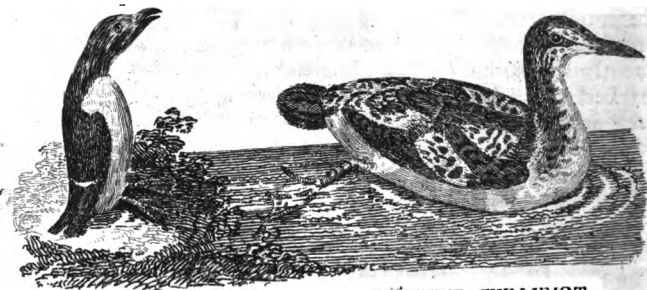
GREAT AUK

Plate XLVI

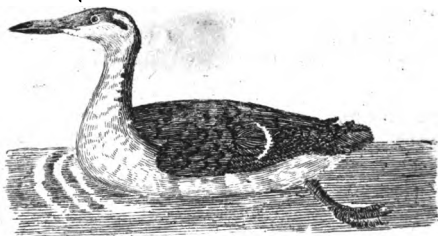


RAZOR BILL

LITTLE AUK



SPOTTED GUILLEMOT



LESSER GUILLEMOT

They are very numerous on the coasts of Norway and Iceland, and several species are common in Scotland. The *Foolish Guillemot*, when shot at, does not quit the rock, though many of them are killed; whilst the *Black Guillemot* dives at the flash of the fowling-piece, and is very difficult to shoot. The spotted is a variety of the black guillemot, that is said to turn white during winter, and is not uncommon in Scotland. The lesser guillemot frequents the Welch coast in winter; and, in pursuit of sprats, arrive in great numbers on the Frith of Forth. The general colour of the tribe is a sooty brown above, and white in the under parts.

DIVER. *Genus 79.* **T**HIS tribe is principally distinguished from the former by a strong pointed bill. From the structure of its limbs it has the same incapacity of walking, as it is equally alert in its movements on the water, being capable of evading the shot of a fowling-piece, by perceiving the flash from the touch-hole. The *Northern Diver* (Pl. 47.) breeds principally in Norway, but is much at sea, and is frequently in Scotland. The head and neck are deep black, marked with white bands, and glossed with purple; the back and wings are black, spotted with white; the whole under part of the body is white.

The **IMBER** (Pl. 47.) is superior in size to a goose. It lives as much at sea as the former. It inhabits the Ork-nies; and, in severe winters, visits the south of England. The skin of this, and of other birds of this genus, is so uncommonly tough, that, in the northern countries, it has been used as leather. In the upper part it is dusky, clouded with black; the breast and belly are silvery white.

SKIMMER. *Genus 80.* **T**HE SKIMMER has a bill of such singular construction that it can neither gnaw, gobble, or pick its food, the under mandible being protracted beyond the upper to a most disproportionate length; it therefore collects it by skimming along the sea, and furrowing the surface with its under mandible; hence it is called, by

Catesby, cut-water. It is about the size of a gull, black above, and white beneath. It is a native of America.

GULL. *Genus 81.* **T**HIS voracious and formidable race of birds is so familiar with the water, that they are frequently discovered by the mariner an hundred leagues from land. They are inhabitants of almost every region; they are numerous in the frozen and temperate climates, and are found in the torrid zone. Many of them devour carrion with the voraciousness of the vulture, and have been seen in great flocks gorging themselves on the dead carcases of whales. The SKUA possesses the strength and courage of the eagle; and, on the rock of Foula, it is said to defend the flocks from that formidable bird, which it attacks with fury, and to which it proves so terrible an assailant that its life is protected by a fine on the person who destroys one. In the Ferroe Isles it so fiercely defends its young, when the inhabitants invade its nest, that it is often transfixed on the staves or knives with which they are armed. It is about two feet long; the bill is two inches and a quarter, hooked, and very sharp.

The **ARTIC GULL**, or **DUNG-HUNTER**, (Pl. 48.) like others of this genus, is in constant pursuit of the lesser gulls. Upon these occasions the weaker bird, it is said, mutes for fear, when the pursuer snatches and devours what is dropped, before it reaches the water. These hostilities have been often witnessed; and they generally take place immediately as one rises from the water, while it holds the prey, which is not yet swallowed, in its bill. The gull, however, possesses the power of easily regorging the contents of its stomach, as is known of those tamed ones who are alarmed or chased in a garden; it may therefore be concluded, that it is the recently caught fish, and not the dung, as has commonly been supposed, that is the object of warfare. The length of the artic gull is commonly twenty-one inches. It is common in the Hebrides. The crown of the head is black; the back wings and tail dusky; the under side of the body white.

Plate XLVII

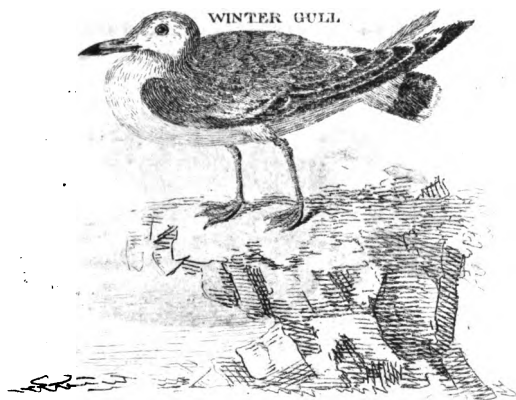
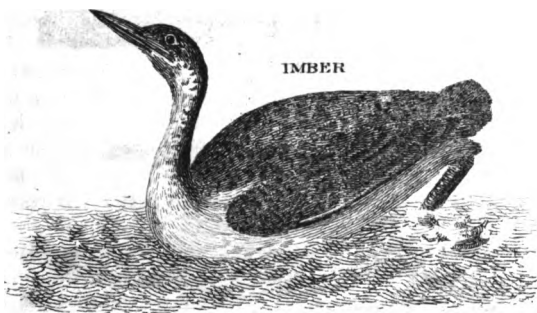
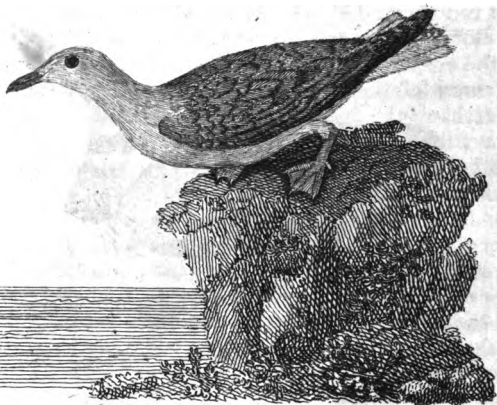
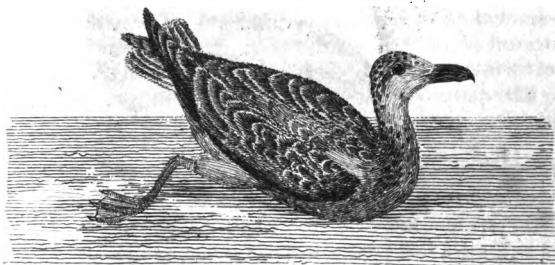


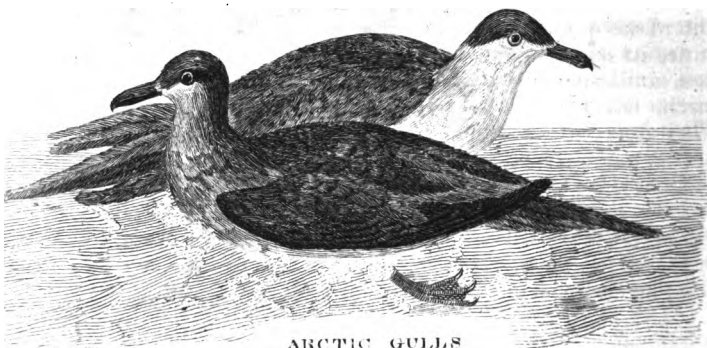
Plate XLVIII



HERRING GULL



WAGEL



ARCTIC GULLS

The **HERRING GULL** (Pl. 48.) is a constant attendant on the shoals of herring, and is so bold as to seize its prey under the eye, and almost in the reach of the fisherman. Like most of the tribe it builds on the ledges of rocks that overhang the sea. It builds its nest of dead grass, and lays three eggs of a dirty white, spotted with black. The head, neck, and tail, are white; the back and wings are ash coloured.

The **WAGEL**, (Pl. 48.), is coloured with a mixture of white, ash-colour, and brown, and has been supposed to be the young of the preceding bird. Mr Pennant does not think so, because they differ in the colour of the eyes, the quill feathers, and the tail, which, in all birds, are permanent.

The **WINTER GULL** (Pl. 47.) forsakes the shores during winter; and, in the inland parts of England, frequents the moist meadows, or follows the tract of the plough, in pursuit of worms. The gelatinous substance called star-shot, or star-jelly, is nothing but the half-digested worms which these birds regorge from their stomachs.

TERN. *Genus 82.* **T**HE **TERN**, (Pl. 49.), from its quick and rapid motions, has been called the sea-swallow. Like the swallow it has long wings, and a forked tail, which enable it to wheel, and skim on the surface of the water with amazing dexterity. It frequents the sea shore, and banks of rivers and lakes, where it feeds on insects and fish. It is the most active of all fishers. It darts into the water in pursuit of its prey, and instantly returns. If its prize be large, its quarrelsome companions dispute for the possession, and compel it to swallow a fish so large for its stomach, that the tail is seen hanging out from the bill. They are at all times very clamorous, particularly when their eggs or young are in danger. They are birds of passage, and are very generally diffused.

The **GREAT TERN** is a beautiful bird, about fourteen inches long, the breadth thirty. The bill and feet are crimson, the back is mantled with a fine grey, the breast

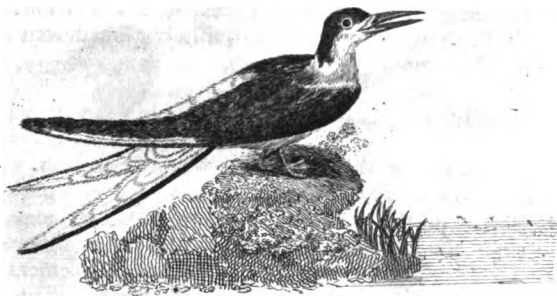
is pure white, elegantly contrasted with a black spot on the crown of the head. The lesser tern principally differs in size; but perhaps excels it in the richness of its dress, the white being so exquisitely glossed, that no satin can be compared to it.

PETREL. *Genus 83.* **T**HE boldness with which the PETREL commits itself to the mercy of the winds and waves, has been witnessed by every navigator. It is found in every part of the ocean, in the most tempestuous weather, and sweeps along the hollows, or climbs on the top of the waves, as if it delighted in the storm. Its natural element is the water, and, except in the breeding season, it is seldom seen on shore. A singular mode of defence is peculiar to the whole genus, in the faculty, of spurting from their bills a stream of pure oil, which, when alarmed, they throw, in great quantity, to a considerable distance.

The FULMAR (Pl. 49.) is rather larger than the common gull. It inhabits the isle of St Kilda, whose inhabitants are indebted to it for almost every necessary of life. It supplies them with down for their beds, food for their table, and the oil furnishes their lamps, is a balm for their wounds, and a medicine in almost every distemper. It has a strong hooked bill, the body is white, except on the back and wings, which are ash-coloured.

The STORMY PETREL, (Pl. 49.) though the smallest of web-footed birds, and no larger than a swallow, traverses the raging ocean at all distances from land, and is never observed to settle or swim on the water. The seaman, when they collect in flocks under the stern of his vessel, considers them as the presage of tempestuous weather; but, if the storm-fishes crowd to a ship for shelter on the appearance of danger, when the tempest has commenced, they brave its utmost fury, sweeping the heights and hollows of the waves. In the Faro isles, the body of the storm-fish is prepared to answer the purpose of a candle, a wick being drawn from the mouth to the tail, where it is lighted, and the flame is fed by the oily viscera of the body. The whole bird si

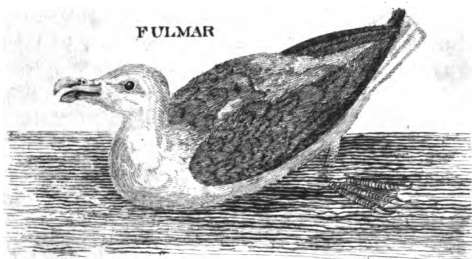
Plate XLIX



GREATER & LESSER TERNS

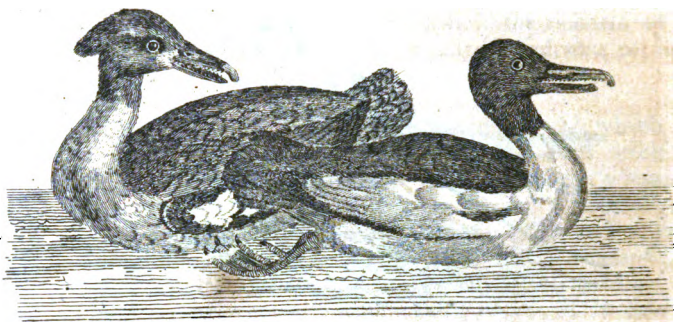


STORMY PETREL

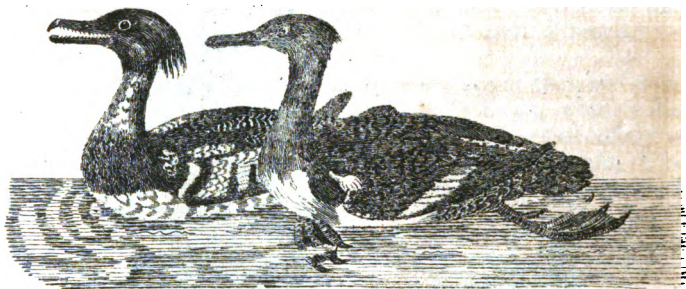


FULMAR

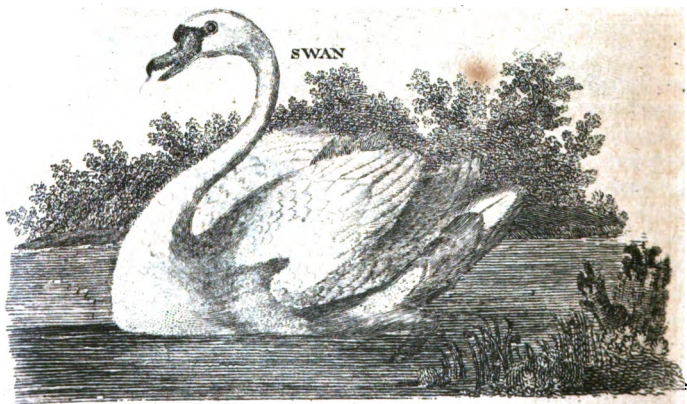
Plate I.



M. & F. GOOSANDER



M. & F. RED BREASTED GOOSANDER



black, except the coverts of the vent feathers, which are white.

MERGANSEER. *Genus 84.* (Pl. 50.) **T**HE GOOS-
ANDER has the feathers on the head long, loose, black, and glossed with green, is common in the north of Europe and America, and is supposed to breed in the Hebrides; the upper part of the body is black; the under part a fine pale yellow; the rump and tail are ash-coloured. The female, called the Dun-Diver, is less crested and ash-coloured on the back and wings.

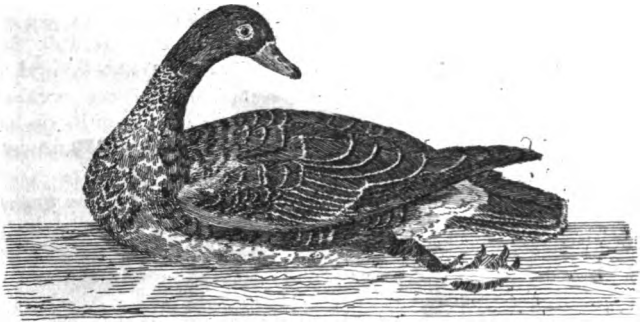
The RED-BREADED MERGANSEER has a long pendant crest, the head and throat are black, glossed with green; the back and wings are boldly blotted with black and white, and elegantly marked with zig zag lines of the same colours under the wings and over the thighs.

DUCK. *Genus 85.* **T**HE SWAN (Pl. 50.) was consecrated by the ancients to Apollo and the Muses; and, the spirit of the departed bard, was assigned to its elegant form. Grateful for the pleasing abode, it became the favourite of his numbers, and was so familiar in his song, that its name was a name for the poet. Indeed, whether we admire the beauty of its shape, the gracefulness of its motions, or the simplicity of its colour, no form but those which animated the pencil of Guido, floats so sweetly on the imagination, as the figure of the swan. Whether it rests on the reflecting lake, or divides the surface with its swelling chest; whether it twists its spiral neck, or arches it between its elevated wings, or stretches it in no less beautiful a contour to explore the surface of the water, the movements are so easy and so majestic, that we are unwilling to follow it on shore, where the shortness of its legs gives deformity to its gait, and even makes the elegance of its neck awkward. Swans are the ornaments of those sheets of water that enliven the pleasure ground of the man of fortune; but, in the time of Edward IV., the possession of them was restricted to the wealthy. They were then considered as an

indispensible part of every great feast, and though they are still fattened and sold for a high price, they are little valued as delicate food. The swan is peaceable in its deportment, but is very fierce when irritated, and is a remarkably strong bird. It has, upon some occasions, thrown down and trampled under feet, youths of fourteen or fifteen years of age, and has been known to break the leg of a man with the stroke of its wing. No bird but the eagle ventures to attack it, and he generally suffers the mortification of a defeat, or loses his life in the contest. The swan makes its nest of withered grafs upon the brink of the water, and sometimes on the floating reeds. It lays seven or eight eggs, and is nearly two months in hatching. The young are covered with a greyish yellow down, which they lose as they acquire their feathers, these are ash-coloured, and this colour they retain till the second year, when they assume their perfect plumage, which is white. The wild swan breeds in high northern regions, but sometimes visits Britain in winter. It is less than the tame swan; it has a loud shrill note, while the tame swan is mute, or only capable of hissing, and as it differs also in the colour of the bill, it has been considered as a distinct species.

The Goose, in its wild state, is ash-coloured and whitish on the breast and belly, but the tame goose is subject to many varieties. It is common almost in every country, and is valued not only for its flesh, but for the well known usefulness of its quills and feathers. Vast multitudes are kept in the fens of Lincolnshire. At the end of a season, a single person will have seven or eight thousand. The breeding birds are kept in wicker pens, disposed in three rows, one above another. Each bird has its separate apartment. A goose-herd attends the flock, and drives them twice a-day to water; when they return, he helps those of the upper stories to their nests, which he always does without misplacing them, though he has some hundreds in his charge. They are plucked at Lady-day for their feathers and quills, and four times more between that and Michaelmas for their feathers only. The BLUE-WINGED GOOSE (Pl. 51.) sufficiently exhibits the ordinary shape of the tame goose,

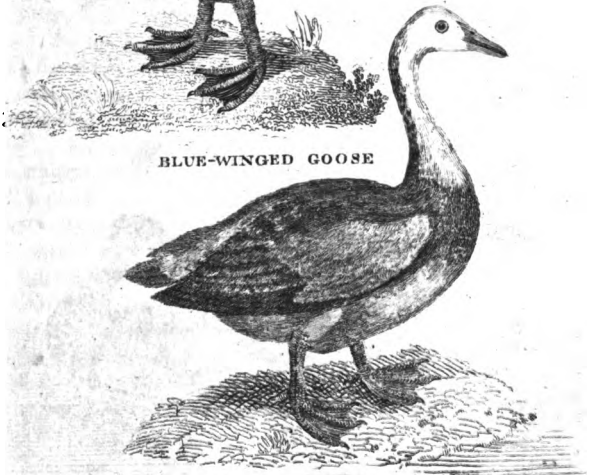
Plate LI



BEAN GOOSE



CANADA GOOSE



BLUE-WINGED GOOSE

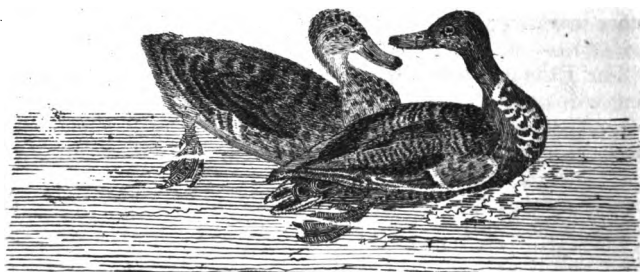
Plate LII



EIDER DRAKE & DUCK



M. & F. VELVET DUCK



WILD DUCKS

but they are sometimes fattened with bran, meal, &c. to an immoderate rotundity. Three breeds may be obtained in a season, if their eggs are taken away and hatched below the common hen; the goose herself, will, with good treatment, produce two, though commonly she has only one hatch in a year. She lays seven or eight eggs, and sits about thirty days. They are said to live an hundred years.

The **BEAN GOOSE** (Pl. 51.) resides in England from August to May, when it retreats to the northern wilds to breed. Their flight, like that of others of the tribe, is very high and conducted with great regularity, whether they follow one another in a strait line, or assume the triangular form of a wedge. The head and neck are of a reddish brown; the back and wings are ash-coloured; the breast and belly are a dirty white.

The **CANADA GOOSE** (Pl. 51.) is brown, its head and neck are black; the throat is white. They breed in Hudson's Bay, though in general they retire farther north. The inhabitants way-lay them in huts made of boughs, placed in a line across the vast marshes, and more than a gun-shot distant from one another. Each hovel is occupied by a single person, who attends the flight of the birds, and who so well mimicks their cackle, that they answer, wheel, and come nearer the stand. When the sportsman sees the eyes of the goose, he fires as soon as he can hit it behind, and instantly seizes another piece. The geese he has killed are set upon sticks as if alive to decoy others; and, in this manner, a single Indian will sometimes kill two hundred in a day. They are easily tamed, and are not uncommon either in France or England.

The **EIDER DUCK** (Pl. 52.) so celebrated for producing a down of a superior warmth, lightness, and elasticity to every other, inhabits Hudson's Bay, Greenland, Norway, and the Hebrides. Among stones or plants near the sea-shore, the duck, to form a soft bed for her young, plucks the down from her own breast, and lays four or five eggs. It is then that the person,

whose business it is to collect the down, and who has watched her operations, seizes both eggs and nest. The duck a second time plucks her breast and lays again, when she is again robbed of her treasure. The drake must now supply the down, as the stock of the duck is expended, though a third time she supplies it with eggs. If they are robbed of these, the persecutor, like the boy in the fable, has killed the goose, the golden treasure is gone, for they wholly desert the place. These birds are, otherwise, constant to their breeding places; and, in Norway and Iceland, are considered as the most valuable property which a father can transmit to his son. The down bears so high a price, that little remains in the countries where it is collected; but the hardy hunter, wrapped in his bear's skin, while the wind whistles round him in his wretched hovel, can soundly sleep; while the profligate sons and daughters of sloth and luxury, to whom the fruits of his toil are transported, cannot repose, even upon beds of down. These birds are double the size of the common duck. The forehead of the drake is velvet black; the upper parts of the body are white; the breast, belly, tail, and quill feathers are black; the general colour of the female is a reddish brown.

The **VELVET DUCK** (Pl. 52.) is larger than the tame duck. Except a white spot behind the eye, and one on the wing, the plumage of the drake is wholly of a fine velvet black; the female is of a deep brown. They inhabit the north of Europe and America; and in the east of Asia in the moulting season, the natives surround them in boats, drive large flocks up the Ochotoka with the flood, and when it ebbs, they knock so many of them on the head with clubs, that fifty or more men will, each of them have twenty or thirty for his share.

The **MALLARD OR WILD DUCK** (Pl. 52.) is the stock of the common tame duck, which is subject to so many varieties, that they are beyond number; though the drake continues to demonstrate his origin, by having the four middle feathers of the tail black, and curled upwards. The wild ducks pair in the spring, breed in

marshy ground, and lay from ten to sixteen eggs. Wild ducks abound in Lincolnshire, where they are caught in decoys between the months of October and February, in such amazing numbers, that from only ten decoys above thirty thousand have been sent to the London market in one season. A decoy is generally made where a large pond is surrounded with wood, in the middle of a marshy uncultivated country, for it is only wet and desert places which fowl haunt, or can securely sleep in during the day. From the pond is cut, in every direction, channels, or as they are called pipes, which grow narrower from the entrance, are covered with an arch of netting stretched on hoops, and terminate with a funnel net. Within one or other of these alleys, the wild fowl, as soon as they rise in the evening to feed, are allured by decoy ducks, who are trained to lead the way, and who follow the whistle of the decoy-man, or are allured by hemp-seed which is thrown to them through the netting, the man being screened with reeds, which are placed along the pipes. In this manner, while the decoy-ducks swim on towards the purse-net, the wild fowl follow on the wing, and willingly approach the snare; or perhaps, the decoy-man advances from his lurking place, and the wild fowl not daring to pass in return, and unable to fly upward for the arched net, are compelled to rush on and are taken in the purse. In Picardy in France, prodigious numbers of wild fowl are taken in the same way and sold in the Paris market. Various modes are practised by different nations; they are shot in a similar method to that practised on the Canada goose; they are taken on the water with a hook baited with sheeps-lights; but the following mode is singular: A person having his head covered with an empty calabash, wades into the water up to the chin, and approaches the place where the ducks are assembled. An object like this being disregarded, the man is allowed freely to mix with the flock, when he has only to pull them by the legs under the water one after another till he be satisfied. This method is made use of on the Ganges, where, instead of a calabash, they use an earthen vessel. It is also practised in China, where ducks are in great esteem.

The wild duck weighs two pounds and an half, and is twenty-three inches long; the head and neck are of a deep shining green; the upper parts of the breast and back, are purplish red; the breast and belly are speckled with grey and dusky lines; part of the wings are white and brown, elegantly barred, and part of a rich purple. The female is of a pale reddish brown, spotted with black.

The LONG-TAILED DUCK (Pl. 53.) seldom goes farther south than the Orkneys, and breeds in the most northern regions. Its manners are the same as those of the Eider duck, and its down is equally valuable. The upper part of the head is white, the sides of the neck are dusky, the breast and back of a deep chocolate colour.

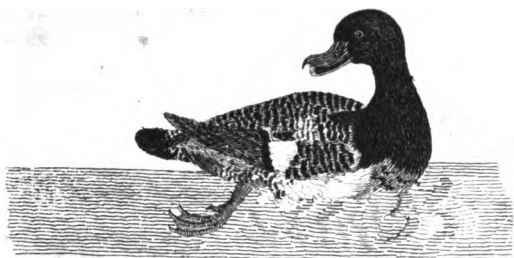
The SCAUP DUCK (Pl. 53.) has the head and neck black, glossed with green, the back, the coverts of the wings, and scapulars, finely marked with numerous narrow transverse bars of black and grey.

The GARGENY or SUMMER'S TEAL, (Pl. 53.) next to the common teal, is the smallest of the duck tribe, and about half the size of a duck. But to proceed, were merely to multiply imperfect descriptions, or descriptions which would never be read, and which are only valuable where they are new, or in a book which is purely scientific. About an hundred species are described by ornithologists; of these, twenty-six visit Britain.

PENGUIN. *Genus* 86. **T**HE PENGUIN of the great southern ocean, bears some resemblance to the auk of the northern hemisphere, but their likeness can be traced little further than to their erect appearance on shore. The seal makes hardly a greater remove from the quadruped than the penguin from the fowl to ally itself to the fish. It has the head of a fowl, with a strong straight bill, but its wings are properly fins; they are totally useless for flight, though they amazingly facilitate its progress in the water. While



LONG TAILED DUCK

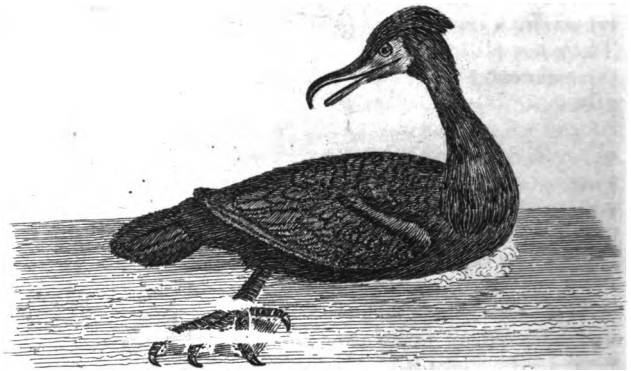


SCAUP DUCK



GARGANEY

Plate LIV

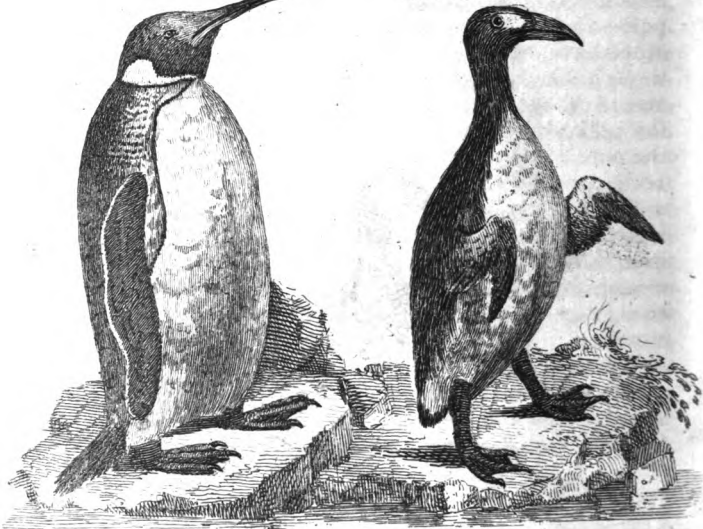


SHAG

PATAGONIAN PENGUIN



NORTHERN PENGUIN



it swims, its whole body is immersed in the water, the head and neck being only visible. The thick short feathers with which it is clothed, resemble scales in their compactness and almost in their texture. Of this singular animal, there are nine species described by naturalists. They are all inhabitants of the southern ocean, and are the peaceable possessors of those dreary and desolate regions of ice and snow, to which the enterprize of man cannot extend his dominion. So much are they natives of a frigid region, that their numbers seem to encrease as they approach the pole; wherever the ice or the shore will give them footing, the multitudes are so amazing, that the groups which encroach on the temperate zone, seem to be driven from their natural climate.

The Patagonian PENGUIN (Pl. 54.) is the largest of this tribe, being nearly four feet high. It was first met with at the Faulkland islands, and has since been seen in Kerguelan's land, New Georgia, and New Guinea. M. Bougainville caught one, which soon became so tame as to know and follow the person who had the care of it. It was fed on flesh, fish, and bread; but shortly after it grew lean, pined away, and died. Of the whole tribe, which are covered with a thick coat of fat, this is the fattest, especially in January when it moults. They are supposed to hatch in October. Fish and the remains of crabs have been found in their stomachs, and their flesh, though black, is not unpalatable. The head, throat, and neck, are deep brown, except a spot of yellow on the neck, which runs in a line to the breast, and blends in the pure white which covers the whole under part of the body; the back is ash-coloured, and every feather is tipped with blue; the wings are dusky, and covered with scale-like feathers; the tail consists of thirty thin shafts, like split whalebone, feathered with unconnected bristles, and seems intended to assist the feet in supporting the body erect; the legs and claws are covered with scales.

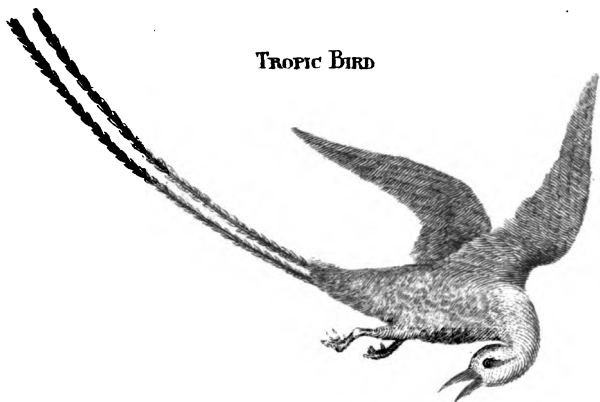
The Magellanic PENGUIN, though only two feet long, is said sometimes to weigh thirty-nine pounds. In Terra del Fuego and Faulkland islands, in the breeding season, they collect in certain spots, which their long resi-

dence has bared of grafs, in the moft incredible numbers. Thefe places are called towns, and the peaceable inhabitants admit among them the human fpecies, who reward their confidence by knocking them on the head, or robbing them of their eggs. Their eggs are rather larger than thofe of the goofe, and are found in pairs, and are palatable. The young is alfo a welcome refrefhment to failors in countries where there is no other fpecies of food. Except in the breeding feafon, they are for the moft part in the water; and, while swimming, are amazingly rapid and alert. The head, neck, back, and upper part of the wings, are black, all the lower parts are white.

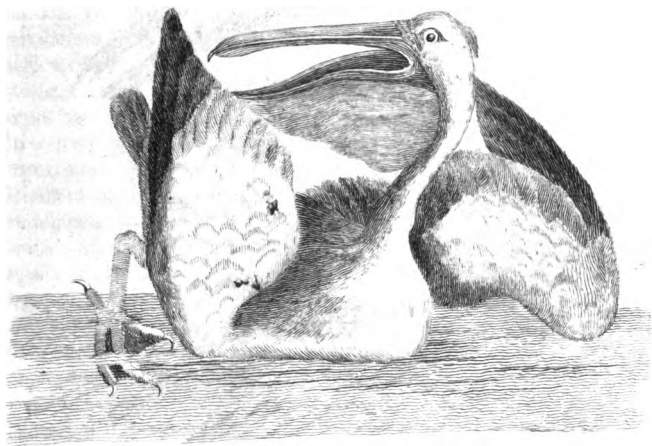
PELICAN. *Genus. 87.* **T**HE PELICAN, (Pl. 55.) among this voracious tribe, is remarkable for a large bag which extends from the point of the under mandible to the throat. The mandible confifts of two flexible branches, and readily admits whatever the animal would depofite in the bag, which is frequently loaded with enormous quantities of fifh, and produces an appearance fo fingular, that, independent of the fables it has given rife to, it is always an object of curiofity. The bag, when empty, it can contract into a fmall fpace under the chops, but it is always capacious, though its fize is in proportion to the fize of the bird. Mr Edwards found the bill of a very large one from the Cape of Good Hope, to be twenty inches. The bill, however, when the bird is about the fize of a goofe, is from twelve to fourteen inches long, and then the bag will very eafily admit of a man's head. With fuch a receptacle for its food, and when hunger aroufes it from its natural fluggifhnefs, it falls forth in fearch of prey. It is furnifhed with ftrong wings, and flies with confiderable power. When it has found the tract of fifh, it dives with unerring rapidity on its prey; and by turns continues to dive and rife into the air, till its bag is diftended to its utmoft ftretch. It then heavily retires to fome neighbouring rock, where, feemingly half afleep, it remains in profound apathy, till aroused by the cries of its voracious appetite, it again renews its labours.

Plate LV

TROPIC BIRD

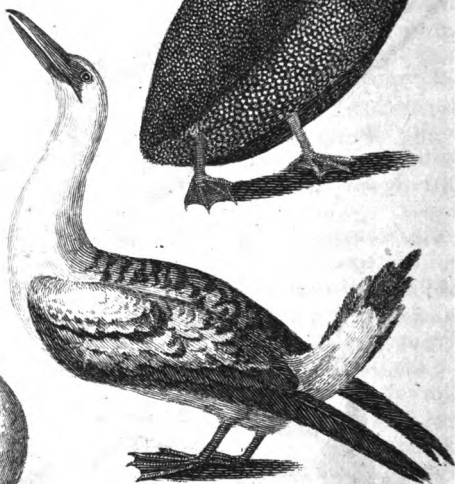


PELICAN

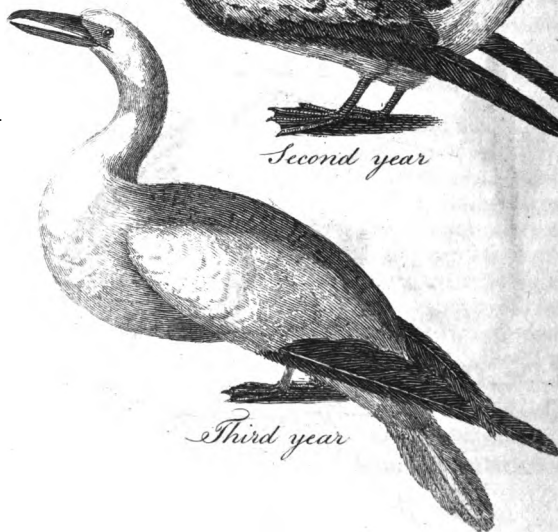


GANNETS

Gannet of the first year



Second year



Third year

The female prepares no nest for its young, but hatches her eggs, to the number of five or six, on the bare ground. Her attachment to her young inspires her with no courage to defend them. She tamely sits and suffers her eggs to be taken from under her ; and now and then ventures to peck or cry out when a person offers to bear her away. She feeds her young with fish, which she discharges from her bag, by pressing the bottom of it to her breast. The young are easily tamed, but they are expensive and useless domestics ; their gluttony is not to be satisfied, and their flesh is nauseous. Great numbers, indeed, are killed by the natives of America for their bags, which they convert into purses and tobacco pouches. The pelican peculiar to warm regions, is found in Egypt, on the coast of Africa, and in the West Indies. Those of the old continent, are generally white ; those of the new are ash-coloured.

The CORMORANT is represented by the figure of the shag or little cormorant, (Pl. 54.) from which it principally differs in size, the shag not weighing four pounds, when the cormorant weighs seven. It frequents the highest places of those stupenduous rocks which hang over the sea, and is met with by navigators in every part of the ocean. It is remarkably voracious, and of all birds has, perhaps, the most sudden digestion, owing to the vast number of worms that croud its intestines, and possess it with the most rank and disagreeable smell, even while it is alive. Like other gluttons, it has its hours of indolence and stupidity ; but when awakened from its lethargy, and spurred by its insatiable appetite, it dives into the sea like an arrow, with such well-directed aim, that its prey seldom escapes. When it rises with a fish cross ways in its bill, it tosses it in the air, seizes it by the head, and dilating its throat, swallows a morsel much thicker than its neck. It is capable of being tamed ; and, in England, was formerly trained to fish, with a ring fastened round its neck to prevent it from swallowing its prey. The practice is still made use of in China, where one person manages a number of them, which he carries out hooded on the prow of his

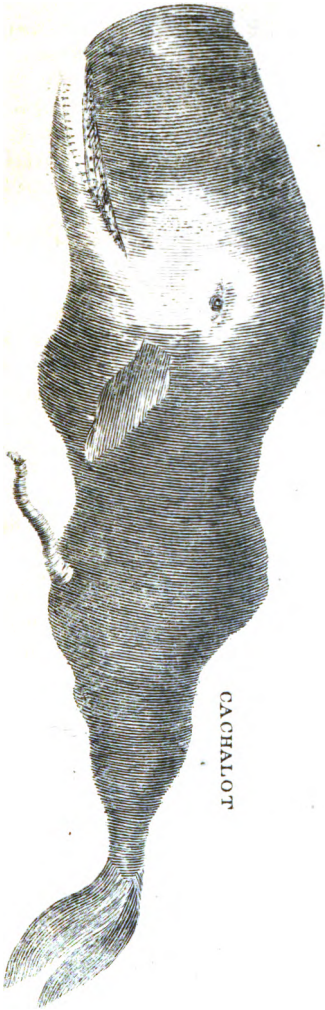
boat. On a signal given, they disperse over the lake, and each, according to its success, returns loaded to its master. The fisherman, when he has received the booty, again dispatches the bird, and continues this operation till he has loaded his boat. He then calls in the flock, unties their necks, and either feeds them with what is taken, or sends them back to fish on their own account. The general plumage of the cormorant is black, glossed with blue; the plumage of the shag is, in the upper parts, of a fine shining green; their nests are made of sticks, sea tang, grass, and weeds, and they lay six or seven white eggs.

The GANNET, or SOLAN-GOOSE (Pl. 56.) like the pelican, has a membrane under the chin, which is capable of being dilated, and will contain five or six herrings, which, in the breeding season, it carries at once to its mate or its young. It is a bird of passage, whose principal food is herring, which it is seen to attend during their whole circuit round the British islands. Gannets are very voracious. In stormy weather they fly low and near the shore; but, in calm weather, their flight is high, from whence they dart headlong on their prey, while the water foams with the violence of their descent. The nest of the gannet is formed of sea-weeds, grass, or whatever it finds floating on the water. It lays only one egg, which is white, and rather less than that of a goose. Vast numbers are found upon the isle of Isla in the Frith of Clyde, the Stack of Soulliskery near the Orkneys, the Skelig isles on the coast of Kerry, and the Bass isle in the Frith of Forth. In St Kilda they are amazingly numerous, above twenty thousand young birds being consumed annually. These are procured by climbing the most difficult and narrow paths to such stupendous heights, that the billows below are diminished, and their roaring is lost amidst the cries of thousands of water-fowl, that mingle the various sounds of these who are skimming around, with those who are heard from a distance; and often the adventurous plunderer is suspended from these horrible precipices, and hangs in midway air, trusting to the strength and foot-

ing of a single person who holds the rope that supports him. Such are the toils of necessity ; and these are not confined to the rock of St Kilda, they are familiar on the shores of Norway and Iceland ; but these dangerous excursions have their attendant pleasures, the enterprising youth is recommended, by their success, to the favour of his mistress, and the hardy father is rewarded with the smiles of his family, for whom he provides a present repast, and lays up a store for the winter.

TROPIC BIRD. *Genus 88.* **F**EW water fowls are constant inhabitants of those regions where they are exposed to the burning heat of the vertical sun, but birds of this tribe are so rarely to be found in temperate climates, that their appearance at sea is a certain intimation to the mariner of his entering into the torrid zone. The tropic bird (Pl. 55.) is about the size of a pigeon. Its flight is often very high and rapid. It pursues and devours the flying fish. It has frequently been observed to rest on the water, and has been seen on the back of tortoises while floating on the surface of the sea ; and on shore it perches on trees. The two long feathers of the tail are in great request among the natives of such of the islands of the Pacific Ocean as it frequents. They are worn in the caps of the Sandwich islanders, and in various parts of their dress ; and they are conspicuous in the mourning garments of Otaheite, in which island numbers are picked up in the mountainous parts, where it also breeds. The bill is red, the colour of the body is generally mottled black and white above, and white below.

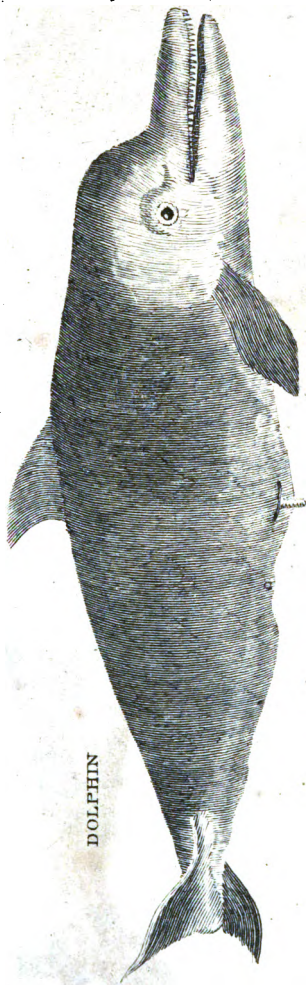
DARTER. *Genus 89.* **A** Singular departure from the ordinary figure of birds is exemplified in the **ANHINGA** or **DARTER**, which we are sorry we cannot illustrate with a figure, as it concludes the entertaining catalogue, by presenting the image of a reptile mounted on the body of a fowl. The body is about the size of a mallard, the legs short, but the neck is long, and the head and bill not unlike the mouth of a serpent, which it still more resembles in the manner, it darts out its head upon its prey. It feeds on fishes, and is a native of South America.



CACHALOT



WHALE



NATURAL HISTORY

OF

F I S H E S.

DIVISION I.

CETACIOUS FISHES.

WHALE. *Genus 1.* **T**HOUGH the WHALE was of no utility to man, its enormous bulk, like a mountain in motion, could not be unregarded. These animals, in the arctic regions, are, at present, sometimes ninety feet long; when the captures were less frequent, they were of a much greater size; and, in the Indian seas, they are still seen one hundred and sixty feet in length. Yet, notwithstanding this amazing size, they swim through the ocean with great ease and velocity. Except that they possess the form and action of a fish, their internal structure so completely resembles that of quadrupeds, that, in the system of Linnæus, they stand ranked in that class, to which their claim is certainly little inferior to that of the seal or the monati. As they possess lungs, they are not only obliged to rise frequently to the surface to respire, but they also sleep upon the water, and are capable of uttering a variety of sounds. They possess also a superiority in hearing; for the organs of hearing are imperceptible in the genuine fish, whereas they can be traced in the whale, though they are small, and covered with a scarf skin. It is probable that such fishes as remain constantly under water are entirely destitute of a sense that would be of little use to them, as the water is known to be so unfa-

vourable to the expansion of sound, that a man twelve feet below the surface scarcely hears the report of a musket discharged over his head ; but though the vibrations, upon which sound depends, be quickly deadened in the water, they are readily transmitted on its surface, and thus the whale, with very small organs, is enabled to hear acutely at a very great distance.

The COMMON WHALE, (Pl. 1.), so remarkable for strength and magnitude, that it seems to threaten destruction to all around it, has its gullet hardly four inches wide, and almost no animal substance is ever found in its stomach. Its food is said to be a sort of small snail that floats on the surface of the water, and the medusa or sea blubber. It is directed to its prey by two small eyes, not larger than those of an ox ; and the head being extremely large for the size of the body, it forms altogether a mass of deformity. In the middle of the head are two orifices, through which it spouts water to a vast height, and with a great noise, especially when disturbed or wounded. What is called *whale-bone*, adheres to the upper jaw, and is formed of thin parallel laminæ, some of the longest four yards in length ; of these there are commonly 350 on each side, but in very old fish more ; 500 are of a length fit for use, the others being too short. The female brings two young at a time, she suckles and shows a great affection for them. She takes them along with her wherever she goes ; and, when pursued, she carries them on her back, and supports them from falling with her fins. Nothing can exceed her tenderness ; for, when she is wounded, she still clasps her young ones, and, when she plunges to avoid danger, she takes them to the bottom, but rises sooner than is necessary for herself that they may again breathe. Waller describes the conduct of a whale and her cub, when surrounded by an arm of the sea, in a manner which strongly displays maternal tenderness. Being deserted by the tide, they were inclosed on every side, and the people from the shore, observing that they had no means left to escape, poured down on them in boats, armed with such weapons as the urgent occasion offered. After several ineffectual efforts to escape, the mother at last, by her superior strength,

forced herself over the shallow into deep water; but, though in safety herself, she could not bear the danger that awaited her young one, she therefore rushed in once more, where the smaller animal was inclosed, resolved, if she could not protect, at least to share the danger. Happily, for the safety of these animals, the rapid inset of the tide soon enabled both to escape from their enemies, though not till they had received many wounds, and tinged the sea all around with their blood. The whale has no pretensions to the sovereignty of the ocean; on the contrary, as it is a peaceable and inoffensive animal, it has many enemies disposed to take advantage of its disposition and inaptitude for combat. There is a small animal of the testaceous kind called the whale louse, that sticks to its body as we see shells stick to the foul bottom of a ship. This creature insinuates itself chiefly under the fins, and, in defiance of all the efforts of the whale, it still keeps its hold, and lives upon the fat, which it is provided with instruments to extract. The fishermen, however, often witness the encounter of the whale with a more terrible enemy. At the sight of the sword-fish this largest of animals is seen agitated in an extraordinary manner, and leaping from the water with fear. Wherever it appears, the whale perceives it from a distance, and flies from it in the opposite direction. The whale has no instrument of defence but the tail, with which it endeavours to strike, and a single blow taking place would effectually destroy the adversary. But the sword-fish is as active as the other is strong, and easily avoids the stroke, then bounding into the air, it falls upon its enemy, and endeavours, not to pierce it with its pointed beak, but to cut with its edges. The sea all about is seen dyed with blood, proceeding from the wounds of the whale, while the enormous animal vainly endeavours to reach its invader, and strikes with its tail against the surface of the water, making a report at each blow louder than the noise of a cannon. A still more fatal enemy to the whale is an animal of its own order, called, by the fisherman of New England, the Killer. Of ferocious habits, and furnished with strong sharp teeth, these animals, when they surround a whale, seldom allow it to come off with life. They tear

and mangle its flesh on all sides, till, fatigued and overcome with wounds, it falls a prey to their fury, when they extract and devour the tongue, which is said to be the sole object of their ferocity. The common whale varies in colour, the belly is generally white, but the back is sometimes red, black, or mottled, others are all white. In the water they are said to be very beautiful. Their skin is smooth and slippery, and beneath the skin their bodies are entirely surrounded with a thick layer of fat, or blubber; the tails are horizontal, and enable them to rise suddenly from the bottom, or repose upon the surface of the water.

NARWHAL. *Genus 2.* **F**ROM the circumstance of only one tooth being usually found on this animal, it has obtained the name of the SEA UNICORN; it is, however, properly a bi-corned fish, for the young ones have always two teeth, and that one which is found in the old fish is always on one side of the upper jaw. From the size of this weapon most naturalists have considered it as a horn, rather than a tooth; but it resembles, in every respect, the tusks of a boar, or an elephant; it rises, like them, from a strong socket in the jaw; it is of the same strong substance, and possesses the same solidity; it is straight and spirally twisted; it was formerly imposed upon the world as the horn of the unicorn, and sold at a high price, and a magnificent throne was made for the Danish monarchs of this species of ivory, which was esteemed of superior value to gold. A medicine prepared from it by the quacks, as an infallible specific against poison and malignant fevers, added also to its celebrity; but at length these frauds were detected by one of the privy counsellors who had a concern in the whale fishery, and received, by the return of some of his own ships, a number of those teeth, some of which were three yards long. This instrument would enable the NARWHAL, if it were a ferocious animal, to become the most formidable and destructive of all fish; but it is harmless and peaceable, it wants teeth for tearing, and a throat for swallowing bulky prey, and it probably uses its tooth principally to disengage, from the rocks or bottom of the sea, the

plants on which it feeds; nevertheless, when it is urged to use this terrible instrument, it drives directly forward against its enemy, and pierces him through. There are many instances of its having been found in the bottom of ships returned from the northern seas, probably owing to the animal having mistaken the ship for a whale, and attacked it with such fury as not to be able to get out the weapon from the wood. There is only one species which is said to grow to the size of sixty feet, though it is seldom found more than 25 feet long, exclusive of the tooth, but the usual size is from 16 to 20 feet.

CACHOLOT. *Genus 3.* **A** Row of teeth in the lower jaw, and a wide throat, announce a voracious animal in the CACHOLOT, (Pl. I.) and what is known of its history corresponds with these appearances; for, while the stomach of the whale is seen to contain hardly any thing but froth, that of the cacholot is crammed with a variety of different kinds of fishes, some half digested, others whole; some small, and others eight or nine feet long. But this animal is not only formidable to the smaller fishes, of which it devours thousands at a swallow, it also pursues the dolphin and the porpoise, and terrifies them to such a degree that they are frequently driven ashore in endeavouring to escape. From the fierceness and agility of the cacholot, its capture would seldom be attempted by the fishers, were it not to obtain the spermaceti and ambergrease, which these animals have been found to contain, and which were formerly in such high esteem with the apothecary and perfumer. The substance, which is improperly called spermaceti, gave the name of Spermaceti Fish to this genus, and is properly the brain. It is now used rather to give consistency to medicines than to add to their virtue; and since it has been discovered that the whole oil of the cacholot is converted into spermaceti by boiling, it has greatly decreased in value. It has now fallen below the price of wax, and is used, instead of it, for candles. Ambergrease is found in the intestines of the cacholot; and, what was formerly found floating on the sea, or the sea coasts, of South America, Africa, or the East Indies, is nothing else but what is discharged

D 2.

by cetaceous animals of this genus. In December 1769 one fifty-four feet long was cast ashore on Cramond Isle near Edinburgh. The head was of a most enormous size, very thick, and above one-third the size of the fish. The upper jaw was five feet longer than the lower, whose length was ten feet. Near the snout, which was quite blunt, and nine feet high, was the spout hole peculiar to the cetaceous order. The teeth, twenty-three on each side of the lower jaw, had corresponding cavities in the upper jaw, some of them were eight inches in circumference at the bottom, and sharpened at top; they were hard, and cut like ivory. The eyes were very small and placed far back in the head.

DOLPHIN. *Genus 4.* AS if it were too destructive to furnish the common whale with voracity and arms equal to its magnitude and strength, and that it were expedient to atone for its moderate appetite and gentleness of disposition, cetaceous fishes, as they diminish in size, grow still more active and greedy. The DOLPHIN (Pl. 2.) is even better armed than the cacholot, having teeth in both jaws; these are placed at some distance from one another, and, when the jaws are shut, the spaces in one are occupied by the teeth of the other. The dolphin was a great favourite of the ancients. It was celebrated for its fondness to the human race, consecrated to the gods, entitled the sacred fish, and distinguished by the epithets of boy-loving and philanthropist. Their partiality was even extended to its form, which is moulded on their coins in more elegant curves than is warranted by the shape of the animal, even when it leaps out of the water. What were the foundations for these prejudices, it is difficult to say. Perhaps they might be assuaged by commiseration on hearing the plaintive moan by which, when taken, it expresses its sufferings. "In a vessel where several dolphins were confined, says an old writer, I spent a night of great uneasiness, so feelingly did these wretched creatures express the miseries of their condition, in cries and lamentations resembling the human. Their sufferings forced from me tears of compassion; and, while the fishermen were asleep, I forced the one that seemed to suffer

the greatest agony overboard into the sea. This act of tenderness availed me nothing, for the moaning of those that remained behind seemed only to be increased, who made signs, too plain to be misunderstood, that they wished for a similar deliverance." The prejudices in favour of the dolphin are now so wholly obliterated, that it is merely regarded as a voracious fish, and its boundings, sports, and frolics in the water, are held by the seamen as a sure indication of an approaching storm. From its swiftness and agility it is not frequently taken, it seldom remains a moment above the water; but, in eager pursuit of its prey, it is sometimes allured into shallows, where it bounces and flounders till it is knocked on the head, or till the returning tide again comes to its relief. It was formerly reckoned a great delicacy. One which was taken in the reign of Elizabeth was thought a present worthy of the Duke of Norfolk, who distributed parts of it among his friends.

The *Porpoise*, that pursues in great numbers the shoals of mackerel, herring, and salmon, that visit our coasts, and the *Grampus*, who is an equally ravenous enemy to the porpoise and the whale, belong to this genus.

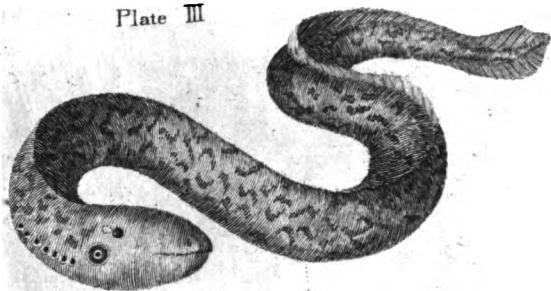
DIV. II.—CARTILAGINOUS FISHES.

LAMPREY. *Genus 5.* **O**F cartilaginous fishes, whose muscles are supported by cartilages instead of bones, some breathe through apertures on the top of the head, as the pipe-fish, in others the apertures are beneath, as in the rays, or on the sides, as in the sharks and lampreys. The **SEA-LAMPREY** (Pl. 3.) is frequently taken in our rivers in nets along with the salmon and shad. They are in the best condition in the months of March, April, and May, when they have just arrived from the salt water, and ascend the rivers. They are very flabby on the approach of hot weather; and, being sea fish, they return, a very few excepted, in a short time to the ocean. They are reckoned a great delicacy, either when potted or stewed, but are surfeiting food, as was fatally experienced by Henry I.

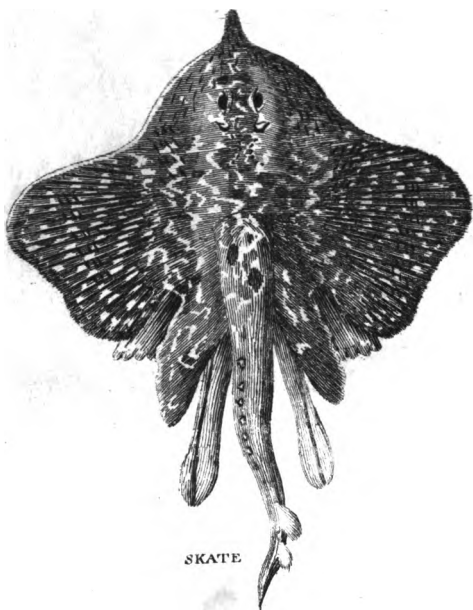
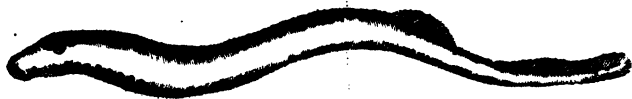
whose death was occasioned by a two plentiful meal of lampreys. Notwithstanding this accident, they continued in high esteem, for Henry IV. granted protection to such ships as brought over lampreys from the coast of France for the table of his royal consort. The *muræna* of the ancients, if it were not the same as our lamprey, was nearly allied to it, and in the highest reputation with the epicures. A senator of Rome was so celebrated for the delicacy of his *muræna*, that no man's fish had so rich a flavour, were so nicely fed, or so exactly pickled. Augustus hearing much of this man's entertainments, desired to be his guest, and soon found that fame had been just to his merits. The man, says Dr Goldsmith, had indeed fine *muræna*, and of excellent flavour. The Emperor was desirous of knowing the method by which he fed his fish to so excellent a relish, and the glutton making no secret of his art, informed him, that his way was to throw into his pond such of his slaves as had at any time displeased him. Augustus, it is said, was not much pleased with his receipt, and instantly ordered all his ponds to be shut up. Goldsmith adds, that the story would have ended better had he ordered the owner to be flung in also. The lamprey sometimes weighs four or five pounds. The mouth is placed somewhat obliquely below the end of the nose, and is jagged on the edges, by this means it adheres so closely to stones, that a lamprey weighing three pounds, when raised from the ground, has been known to suspend at its mouth a stone of twelve pounds weight. Within the mouth are twenty circular rows of small teeth. The colour is dusky, clouded with dirty yellow.

The LESSER LAMPREY (Pl. 3.) is found in the Thames, Severn, and Dee. When they are potted with the larger kind, they are by some preferred to it as milder tasted. Vast quantities were taken about Mortlake, and sold to the Dutch for bait in the cod-fishery. Above 450,000 have been sold in a season at forty shillings a thousand. Of late vast numbers have been sent to Harwich for the same purpose. It is sometimes ten inches long. The colour is brown or dusky, and sometimes mixed with blue.

Plate III

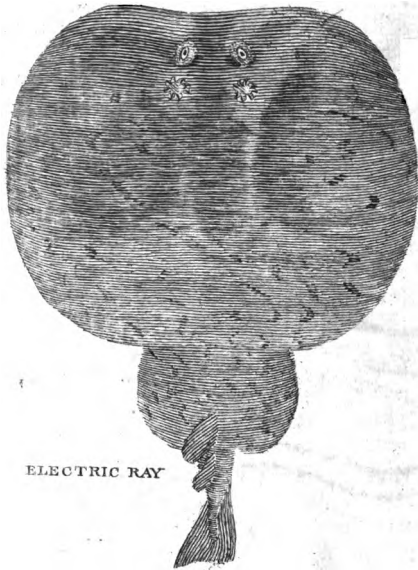


LAMPRIES

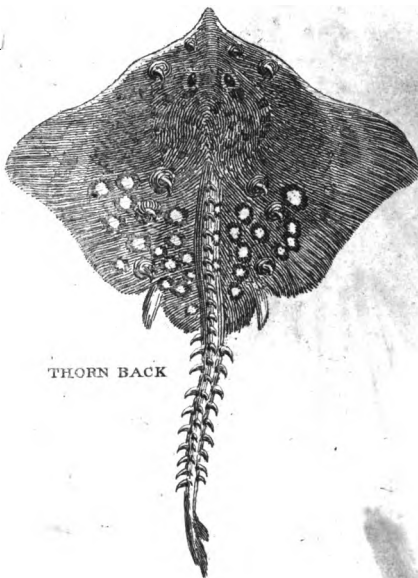


SKATE

Plate IV.



ELECTRIC RAY



THORN BACK

The PRIDE is the least lamprey. It lodges generally in the mud, and is not observed to adhere to stones like other lampreys. It is sometimes eight inches long, and about the thickness of a swan's quill, though commonly much smaller.

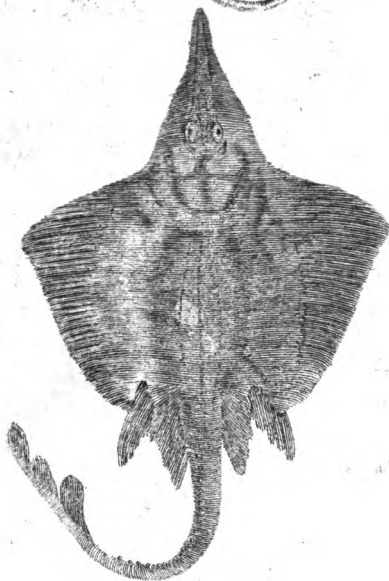
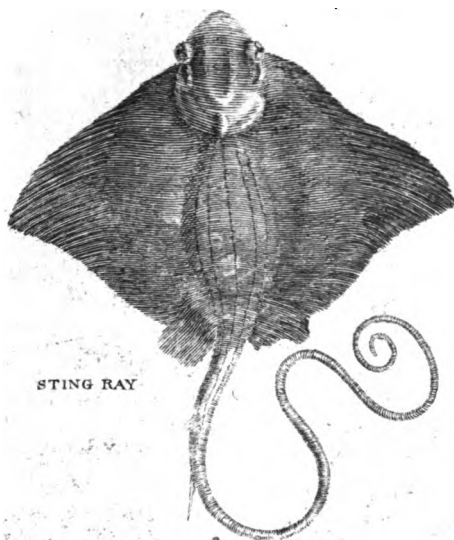
RAY. *Genus 6.* FROM the softness and pliancy of the grizzle that supports the body of animals of this class, it is supposed that they continue to increase in size as long as they live; accordingly, in England, the RAY sometimes weighs two hundred weight. Near the island of Gaudaloupe, in the West Indies, one was killed which was thirteen feet eight inches in breadth; from the point of the beak the body was ten feet; and the tail, which was twenty inches broad at its insertion, and tapered to a point, was fifteen feet long. It is possible they may attain even a larger size than any that has yet been examined: but it is hardly probable, as some have supposed, that they are the largest inhabitants of the sea, for they not only attain a size beyond the swallow of the cacholot, or the shark, but they are protected from their attacks by the frightful spines with which they are armed; and, having apparently no enemy but mankind and disease, they seem to be secure of attaining their utmost magnitude, which is never found equal to that of cetaceous fishes. This protection is evidently seen in their numbers, for of all the larger fish the rays are the most numerous. They are in general excellent food; but, in proportion as they grow large, they are coarse, and unfit for use. They frequent those parts of the water where the bottom is black and muddy, and are exceedingly voracious, but delicate with regard to a baited hook. Fourteen different species of rays have been described, and eight of these frequent the British coasts.

The SCATE (Pl. 3.) is the largest of this genus, and thinnest in proportion to its bulk. Willoughby mentions one sold in the market of Cambridge, which, when dressed by the cook of St John's College, dined one hundred and twenty students. The nose is sharp, pointed, and

above the eyes is a set of spines; the tail has two fins near the end, and a row of spines along the top of it.

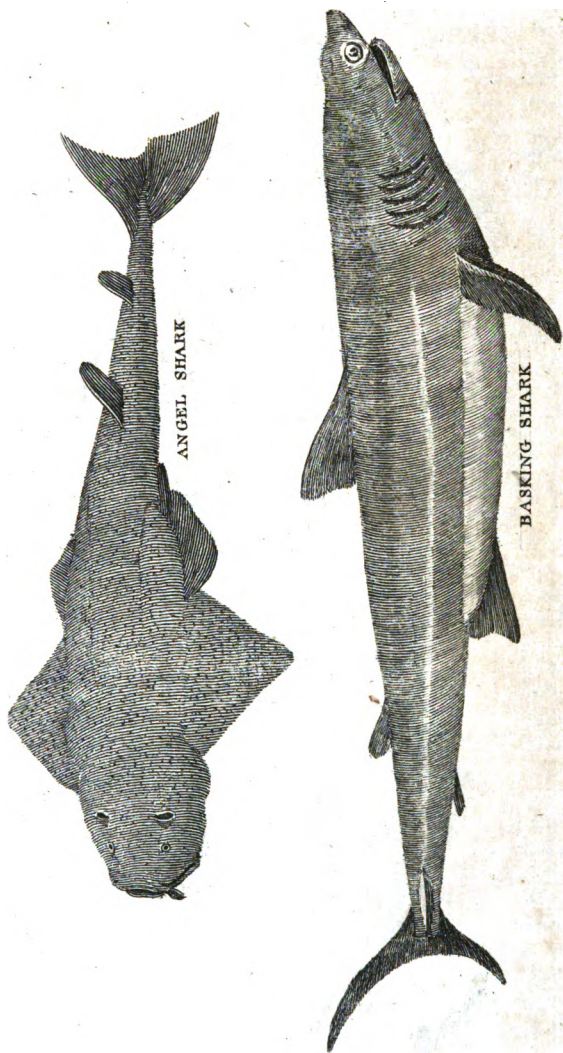
ELECTRIC RAY or TORPEDO (Pl. 4.) possesses such a singular benumbing quality, that the astonished fisherman who touches it, is deprived of the use of his arm; and the passenger who inadvertantly treads on it, is thrown with an instantaneous shock to the ground, and is even affected if he touch it with a stick. The subtle power is said to extend thro' the whole length of a line, and to render the fishing-rod idle in the hands of him who holds it. It appears probable, that by this means it stupifies and seizes its prey; for the surmullet, which is a fish of that swiftness, that it is impossible for the torpedo to overtake by pursuit, has been found repeatedly in its stomach. If this extraordinary quality were at all times equally vigorous, it would be the most effectual defence against ferocious attacks, that nature had imparted to any animal; it is probable, however, that this electrifying power may subside as it is exerted, for, however great it be when the fish is in vigour, it lessens as it declines in strength, and totally ceases when it expires. The shock of the torpedo nearly resembles that of an electrical machine, sudden, tingling, and painful. "The instant," says Kempfer, "that I touched it with my hand, I felt a terrible numbness in my arm, as far up as the shoulder. Those who touch it with the foot, are seized with a stronger palpitation than those who apply to it the hand. This numbness bears no resemblance to that which we feel when the vein has been a long time pressed, and the foot is said to be asleep, it rather appears like a sudden vapour, which, passing through the pores, in an instant penetrates to the very springs of life, from whence it diffuses itself over the whole body, and gives real pain; the nerves are so affected, that the person struck imagines all the bones of his body, and particularly those of the limb that received the blow, are driven out of joint; all this is accompanied with an universal tremor, a sickness of the stomach, a general convulsion, and a total suspension of the faculties of the mind. In short, such is the pain, that all the force of our promises and authority, could not prevail on a sea-

Plate V.



LONG NOSED RAY

Plate VI.



man to undergo the shock a second time." The torpedo is found on the English coast, from the length of eighteen inches to eight feet. It is found in greater numbers on the coasts of France; and as its flesh retains no noxious qualities from its living powers, it is there in common request as an article of food. It buries itself superficially in the sand, by flapping quickly with its extremities. The skin is smooth, a dirty clay above, and white beneath, the head and body are indistinctly separated, and form one round; they body is flat, and very thin at the edge.

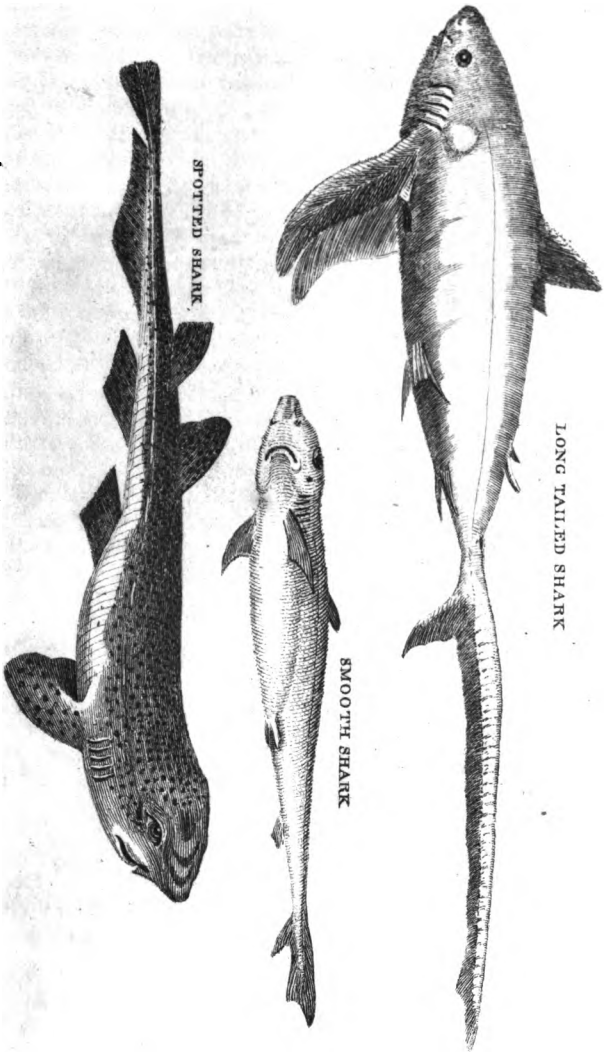
The THORNBACK (Pl. 4.) is common on our shores, is very voracious, and feeds on all sorts of flat fish, is particularly fond of herrings and sandeels, and sometimes weighs fourteen or fifteen pounds.

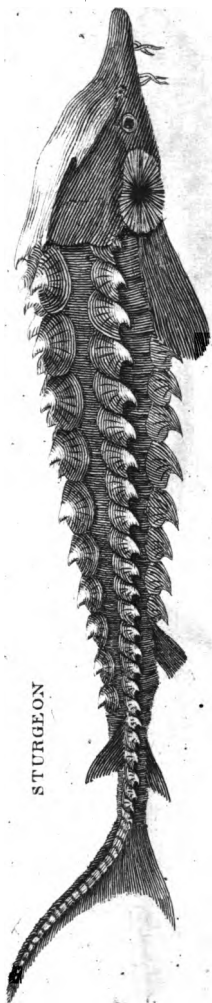
The STING RAY (Pl. 5.) is armed on the tail with a spine, sometimes five inches long, flat on the top and bottom, very hard, sharp pointed, and the two sides thin and closely and sharply bearded the whole way. With this weapon of defence, the animal inflicts such severe and dangerous wounds, that the ancients supplied it with poison, and this of so virulent a nature, that trees struck by it instantly lost their verdure and perished, and rocks themselves were incapable of resisting the powerful poison. It was with the spine of the trygon or sting ray, that the enchantress Circe armed her son, and with this irresistible weapon, he unintentionally became the murderer of his father Ulysses. That spears and darts were in early times headed with this bone, there is little doubt; the arrows of many of the South American tribes, are still pointed with it; and from its hardness and sharpness, it makes no contemptible weapon. Its venomous qualities are now generally discredited, even by the fisherman, who throws it not away when he finds it in his tackle, but chops off its tail, and sends it among the rest to market.

SHARK. *Genus 7.* FEW fables have been told of the SHARK, perhaps because invention could conceive no horrible circumstances to

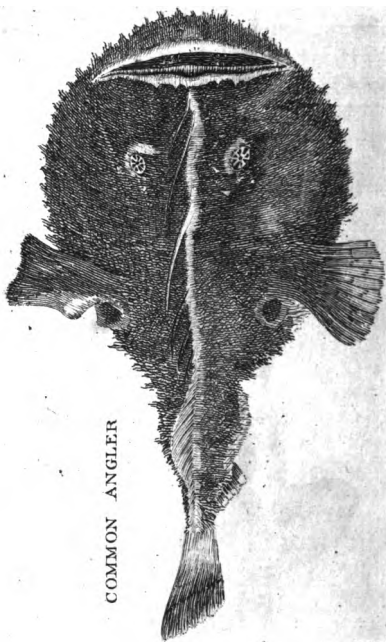
surpass the well-authenticated effects of its voracity. In the coolness of our climate, that abates the venom of other animals, its fierceness is somewhat lessened, yet the smallest of the race is dreaded by almost every fish of the sea; and in hot climates, the white shark in particular is the most greedy and terrible tyrant of the ocean. Of an immense bulk, it sometimes weighs four thousand pounds; and on one occasion it appears, that a human corps was found entire in its belly. If a seamen has by accident fallen the victim of a shark, it expresses its preference for human flesh by continuing a long time to swim around the ship, or hang in its wake in expectation of a similar repast. At the famous naval battle of the 12th of April 1782, when the *César*, one of the French ships of the line, was set on fire, and the sailors threw themselves into the sea, Sir Charles Douglas observed great numbers of these sharks, which lay between the French and British fleets, instantly seize upon the devoted victims. He several times saw two of them disputing about their prey, each seizing a leg, and at length disappearing, dragging the body along with them. Notwithstanding the continued roar of artillery, he heard distinctly the cries of these unhappy men. In the trade between the West Indies and the coast of Africa, where man himself is exhibited in his most hateful aspect, they are constant attendants on the ships. They dart upon their prey like gudgeons at a worm; and he who has the misfortune to drop overboard, perishes without redemption. A master of a Guinea ship informed Mr Pennant, that a rage of suicide prevailed among his new bought slaves, from a notion the unhappy creatures had, that after death they should be restored again to their families, friends, and country. To convince them at least that they should not reanimate their bodies, he ordered one of their corpses to be tied by the heels to a rope, and lowered into the sea, and though it was drawn up again as fast as the united force of the crew could be exerted, yet, in that short space, the sharks had devoured every part but the feet, which were secured at the end of the rope. During the American war in 1780, while lying off Kingston harbour, a young North American, who had been captured in a small vessel, lost his property, and

Plate VI.





STURGEON



COMMON ANGLER

and detained by compulsion in the English navy to serve in the war against his country, jumped one evening overboard, and perished in a shocking manner. A shark perceived him, and followed him very quietly till he came to a state of rest, and was hanging by a rope that moored the Pallas frigate to a wharf, scarcely out of his depth, when the shark seized him by the right leg, and stripped the flesh entirely away from the bones, and took the foot off at the ankle. He still kept his hold, and called to the people in the vessel near him, who were standing on the deck and saw the affair. The shark then seized his other leg, which the man, by his struggling, disengaged from his teeth, but with the flesh cut through down to the bone into a multitude of narrow slips. The people in the vessel throw billets of wood into the water, and frightened the shark away. The young man was brought on shore. Dr Moseley was called to him, but he had lost so much blood before any assistance could be given him, that he expired before the mangled limbs could be taken off. For this work of death, the white shark is supplied with a dreadful apparatus, his mouth being furnished with a sixfold row of teeth, flat, triangular, exceedingly sharp at the edges, and closely ferrated. These, when the fish is in a state of repose, lie flat in the mouth, but when he seizes his prey, by the power of certain muscles, they are erected. The mouth of the shark is placed so far beneath the projection of the nose, that it is obliged to turn on its side before it can seize its prey, and in this manner is its swiftness and dexterity in the water somewhat counteracted, for while the evolution is performing, the prey often finds time to escape.

The ANGEL SHARK (Pl. 6.) connects the genus of rays and sharks, as it partakes something of the nature of both; it, however, differs from each of them in the situation of the mouth, which is placed at the extremity of the head. It is not unfrequent on our coasts. It is extremely fierce and dangerous, and has been known to inflict terrible wounds on the fisherman who has incautiously wished to seize it in shallow water. The aspect is malignant; the skin is ash-coloured and very rough. It

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grows to a great size, and sometimes weighs an hundred weight.

The **BASKING SHARK** (Pl. 6.) has been long known to the inhabitants of the south and west of Ireland, Scotland, and Wales, by whom it was mistaken for a whale, till Mr Pennant pointed out its five transverse breathing apertures, and its perpendicular tail. Its food seems to consist entirely of sea-plants, no remains of fish being discovered in the stomachs of numbers that have been cut up. It generally lies motionless on the surface of the water, as if basking in the sun; and is so tame as to suffer itself to be stroked. It is sometimes twenty-seven feet long.

The long tailed **SHARK** (Pl. 7.) is sometimes taken in our seas, and has been imagined to be the fish called the Thresher, from its attacking and beating the grampus with its long tail, whenever that species of whale rises to the surface to breath.

The **SPOTTED SHARK** (Pl. 7.) or greater Cat-fish. The weight of one that was three feet eight inches long, was only six pounds three ounces. So light are the cartilagenous fishes in respect to their size.

The **SMOOTH SHARK** (Pl. 7.) is so called, not because the skin is smooth, but because it wants the spines on the back that distinguish it from the piked dog, a species of shark that swarms on the coast of Scotland, and which is made use of for food. It must not be omitted of this tribe, what is pretty well authenticated of some of them, that the young brood, when they are in danger, swim down the throat, and take shelter in the belly of the old ones; and Mr Pennant remarks, that this is no more incredible than that the young of the opossum should find such an asylum in the ventral pouch of its parent, and surely it is not, if there be a chamber in the shark as much separated from the digesting power of the stomach as is the bag of the opossum.

ANGLER. *Genus 7.* **I**F there were an ugly club, and a prize for deformity among fishes, the **ANGLER** (Pl. 8.) would probably be the successful candidate. It has been called the Sca-devil, and this appellation seems neither unsuitable to its phiz nor its stomach. The head is much larger than the whole body, with which it forms one round flat mass, tapering to the tail like the tadpole of a frog, from whence it has been called the frog-fish. With a large projecting under jaw, its mouth is sometimes a yard wide, and is furnished with a multitude of slender sharp teeth. It is so great an enemy to the fierce and voracious dog-fish, of which it devours great numbers, that the fishermen of Scarborough, whenever they take it in their nets, restore it to the ocean to continue its plunder. Above the nose are three long filaments, and on the back three others, that seem like lines thrown out from among the mud to entice the fish to play around it, when it springs upon them and devours them. Some anglers are between four and five feet long. The skin is smooth, dusky above, and white below.

STURGEON. *Genus 9.* **A**MONG the numerous tribes of fishes that present themselves an easy prey to the necessities of man, the **STURGEON** (Pl. 8.) is in the highest request for the delicacy and firmness of its flesh. It ascends our rivers, but in no great numbers, and is taken in the salmon nets. Sturgeons are numerous in the rivers of Russia and Germany. In the rivers of North America, during summer, multitudes of them are seen leaping some yards out of the waters, when they fall on their sides with such a noise that they are heard at a great distance. They are nevertheless spiritless animals, they make no resistance when entangled in the nets, and are drawn out of the water like a lifeless lump. Their mouths are unprovided either with teeth or jaw-bones, hence they collect their food by suction; and, incapable themselves of injuring other fish, they fly before every pursuer. The Russians make caviare of the roes, by drying them, after having washed them with vinegar, and taken out the membranes. Isinglass, so useful as a glue for paper,

musical instruments, &c. is made of the sound. They sometimes grow to a great size, and are eighteen feet long. They are covered with five rows of large bony tubercles, which gives them a pentagonal form. They are flat on the belly, and of a silvery whiteness above; they are of a dirty olive colour.

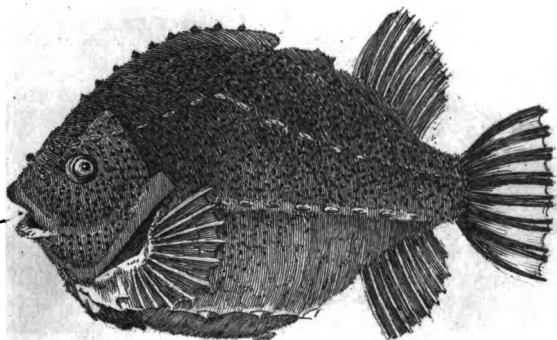
DIODON. *Genus 10.*

SUCKER. *Genus 11.* **O**N the belly of the LUMP-SUCKER, (Pl. 19.) surrounding an oval aperture, is a fleshy and muscular substance, edged with small thready appendages, which operate as so many clasps, by which it adheres to any substance with great force. One thrown into a pail of water fixes itself so firmly to the bottom, that, on taking the fish by the tail, the vessel with its contents may be lifted from the ground, although it holds some gallons. The shape is very deep and thick. It grows to the length of nineteen inches.

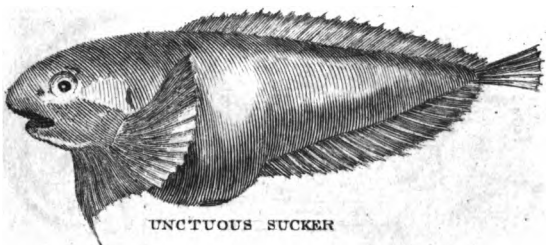
The UNCTUOUS SUCKER, or SEA SNAIL, resembles the land snail in the soft and unctuous texture of the body. It is found near the mouths of rivers, and seldom exceeds five inches in length. The *Fura Sucker* is still less. The *Birradiated Sucker* is found near Weymouth. The figure is about the natural size.

SEA PORCUPINE. *Genus 12.* **A**N animal of this tribe seems, at first view, slender and inoffensive, but is no sooner alarmed or provoked, than it swells to a globular shape, and erects a multitude of spines with which it is surrounded. In proportion as the skin is inflated, by means of an internal bag filled with air, the spines, which are strong and sharp, are erected; as the extension subsides, the spines become less erect, and lie flat on its sides when the animal is at rest. SEA PORCUPINES (Pl. 10.) are common in America. They are usually twenty inches long, and twenty-nine in circumference, when inflated.

Plate IX.



LUMP SUCKER



UNCTUOUS SUCKER

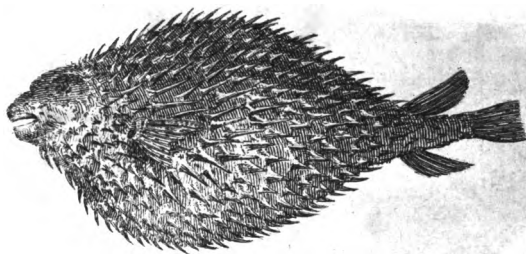


BIMACULATED SUCKER

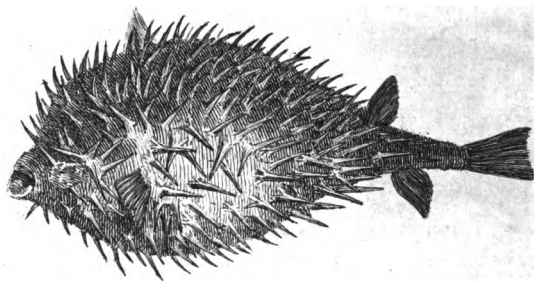


JURA SUCKER

Plate X



SEA PORCUPINES



OSTRACION

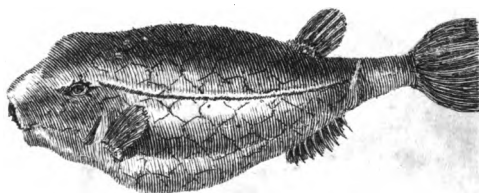
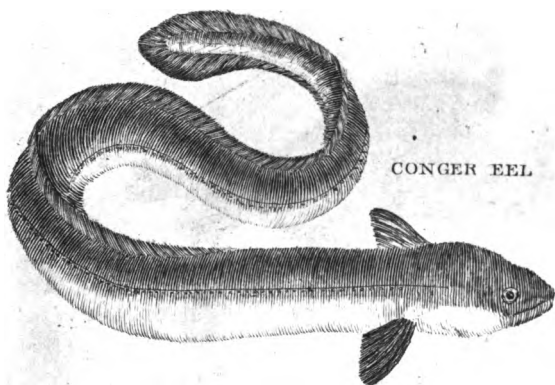


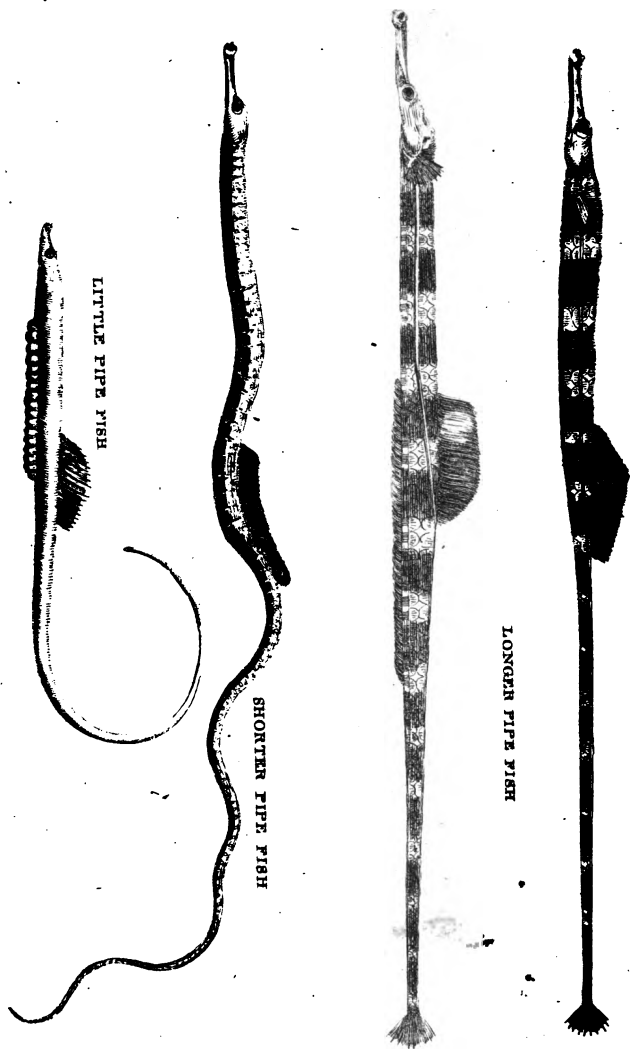
Plate XII



EELS



Plate XI



OSTRACION. *Genus 13.* **T**HERE are several kinds of this fish, all inhabitants of warm countries, and all covered on the body with a crustaceous substance. That which is figured (Pl. 10.) was sixteen inches long, and four deep.

PIPE FISH. *Genus 14.* **S**EVERN species of the PIPE-FISH are enumerated, of which three (Pl. 11.) are found in the British seas, and are frequently called Sea-Adders. The greater is sometimes two feet in length, the lesser sixteen inches, and the little pipe fish five inches long. Except the little pipe fish they are all covered with a strong crust.

DIV. III.—BONY FISH.

SECT. I.—*Apodal, where the ventral fins are wanting.*

EEL. *Genus 15.* **T**HE class of fishes whose muscles are supported by bones, has been considered by the later naturalists as exclusively entitled to the appellation of fish, the cetaceous kinds were ranked with quadrupeds, and the cartilaginous with amphibious animals; but, however the system that better accommodates itself to common language is approved of, difficulties constantly occur of separating into classes the graduating work of nature, and thus it is, that the smallest divisions in system are subject to many exceptions. At the head of the bony fishes,

The EEL partakes much of the nature of a reptile, and is capable of living a long time on land. It frequently leaves the water, and traverses the dewy meadows during night, not only for a change of habitation, but in quest of prey, feeding on the snails that it finds on its passage. During the winter it beds itself deep in the mud, and continues in a state of rest like the serpent kind. A small kind, called the Bed-eel, collect in clusters at the bottom of the Tyne, and these, when they are raised by floods, are always found, like blind worms, without any food in their stomachs. Eels are extremely

tenacious of life, and not only survive blows that would kill the most of animals, but even when they are fleyed, and cut asunder, they continue to wreath their snaky forms with horrid expressions of torture. They are, however, easily destroyed by cold. It is said they have been known to shelter in a hay-rick, and even there have all perished. In severe weather they will eagerly take shelter in a wisp of straw thrown into a pond, and this has been sometimes practised as a method to take them. They are extremely voracious, they grow to a great size, weighing sometimes, though rarely, fifteen or twenty pounds, and are very destructive to the fry of fish. They are very universal, and vary in colour, from a footy hue to a light olive green, those that are called Silver Eels, with their bellies white, have a remarkable clearness throughout.

The CONGER EEL (Pl. 12.) is generally darker than the common eel, and grows to so great a size, that some are eighteen inches in circumference, ten feet long, and weigh upwards of an hundred weight. That the large conger may not endanger the fishermen, by clinging round them, they are killed as soon as possible, by striking them on the navel. Mr Pennant thinks that a fishery of congers might be established with advantage in the Hebrides.

WOLF FISH. *Genus 16.* **C**RABS, lobsters, large whilks, mussels, scollops, &c. are the food of the WOLF-FISH; (Pl. 13.) and, for the purpose of effecting the destruction of such well defended prey, it is provided with remarkably strong teeth. The foreteeth are sharp and conical, they diverge a little from each other, and stand far out of the jaws. With these it not only breaks the hardest shells, but will gnaw even the anchor of a ship, so that the noise is heard on deck, and the marks of its teeth are plainly discernible on weighing it up. These teeth are frequently found in a petrified state, and are called Buffonites or toadstone. On the Yorkshire coast, where they are four feet long, they are eaten by the fishermen, who prefer them to holybut. Near Shetland they are sometimes seven

feet long ; they are numerous in the seas of Iceland, Greenland, and Norway.

LANCE. *Genus 17.*

MORRIS. *Genus 18.*

OPHIDIUM. *Genus 19.*

STROMATEUS. *Genus 20.*

SWORD FISH. *Genus 21.* **W**HEN we behold a fish with its upper jaw prolonged into a bone weapon like a sword, and consider that this is impelled forward with the whole strength of a body, where the head alone sometimes weighs seventy-five pounds, so far from being inclined to doubt that it is a formidable enemy to the largest inhabitants of the ocean, we are induced to wonder how fishes of any size can exist in its neighbourhood. But the weapon of the SWORD FISH, were it buried deep enough in a large fish, would possibly effect its own destruction, as the first twist of the wounded animal would certainly disarm it. It would be tedious to use it on very small fish, it would also be uncertain in so elastic an element. The object of the sword fish, therefore, is a prey of size, and the tunny is generally its devoted object. Sword fish are sometimes found in the British seas, but they are numerous in the Mediterranean, particularly between Sicily and the Italian coasts, and have long supported a considerable fishery. The sword fish is slender in the body, thickest near the head, and tapers to the tail, which is shaped like a crescent. The sword is sometimes three feet long, compressed at the top and bottom, and sharp at the points ; the skin is rough and very thin ; the colour of the back is dusky, the belly silvery.

SECTION II. *Jugular.*

Where the Ventral Fins are placed before the Pectoral Fins.

DRAGONET. *Genus 22.* **F**ISHES have their sight in greater perfection, than perhaps any other sense ; yet, even in this respect, they are apparently inferior to other animals. The film that confines the humours of the eyes, seems less transparent than that of animals who have eye-lashes, and the prominence and convexity must sooner concentrate the rays of light, and produce short-sightedness. There is no evidence that fishes see to a great distance, and they are even easily deceived with a bait, which is often but a slight imitation of their food. The eyes of the DRAGONET (Pl. 14.) are large, placed very near each other, and on the upper part of the head ; they look always upward, and as the animal is generally found in deep water, they appear materially to operate for its security ; but the dragonet is as frequently preyed upon as other fish, and is frequently found to be the victim of the cod. It is found as far north as Spitzbergen, and as far south as the Mediterranean. It is a singularly beautiful fish, spangled with yellow, blue, and white ; the blue, in particular, glows with inexpressible splendor. It grows to the length of ten or twelve inches. The head is large, the body slender, round, and smooth. The first ray of the first dorsal fin is so immoderately long, as almost to reach the tail ; the membranes of all the fins are extremely thin and delicate.

URANOSCOPUS *Genus 23.* **I**S about nine inches long, with a large flat and circular head, it has the appearance of constantly staring upwards. The head is covered with tubercles, surrounded with spines. It is found principally in the Mediterranean, and is said to be a delicious morsel.

WEAVER. *Genus 24.* **T**O make existence valuable to every animal, Nature has supplied the meanest with a sensation of con-

Plate XIII.

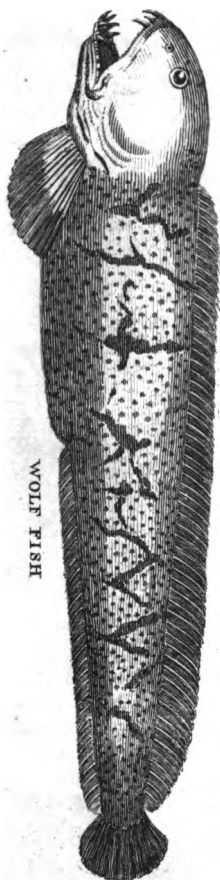
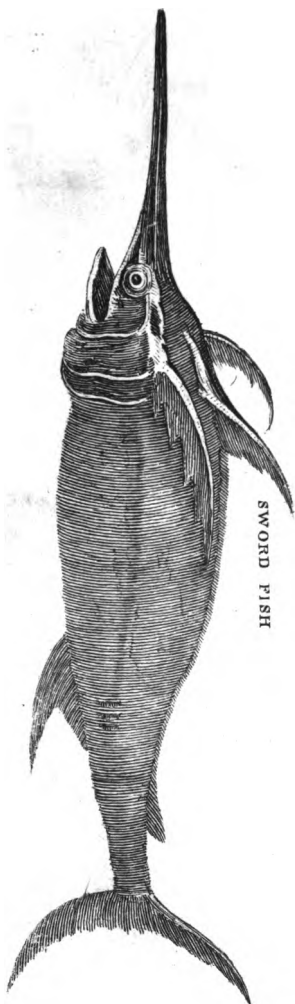
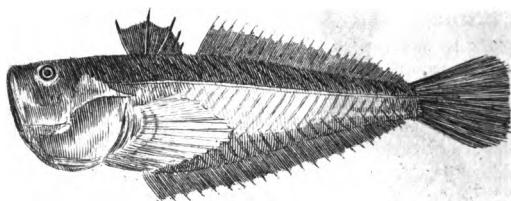
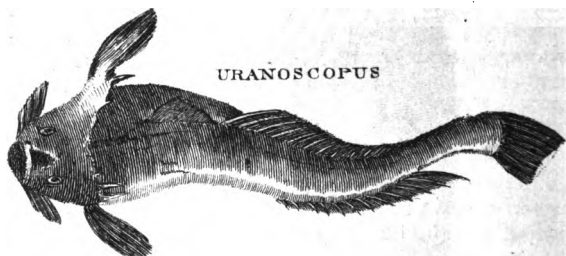
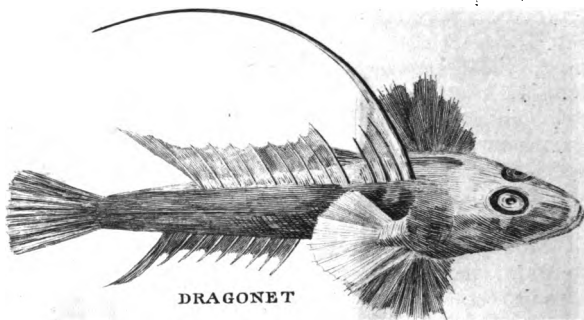


Plate XIV.



fidence in some or other means by which it can secure its prey or defend itself. The **WEAVER** (Pl. 14.) is a small fish, and seldom reaches to the extent of twelve inches, yet such is its security in the spines that support the upper fin on its back, that it strikes with them, and seems to direct its blows with the judgment of a fighting cock. It buries itself up to the nose in the sand, and if trod upon, strikes out with so well directed an aim, and with such force, that the wounds it inflicts are severe, and sometimes dangerous. They are attended with acute pain, and often followed with inflammation, and shooting to the whole extent of the limb; and, as the fin is of a black colour, it is a common notion, that venom is infused with the wound. It has, indeed, a suspicious aspect; but, as small and deep wounds, in a tendinous part, will at all times effect what is accomplished by the weaver, there is, perhaps, as little reason for imputing poison to the spines of this fish, as to the sting of the ray. This report of its noxious qualities does not, however, operate for its safety, for it is taken and eaten and is exceeding good meat.

COD. *Genus 25.* **H**UMANITY has always been struggling with the necessities of our nature. Numerous sects and notions have denied themselves the use of animal food; philosophers have repeatedly reduced diet to the utmost simplicity, and few have arrived at manhood, whose sensibility has not recurred to the modes of furnishing the table, and shuddered at the fate of the sheep or the lamb. Merely to deprive animals of a life, which we cannot restore, will excite emotions of pain, which we must not destroy. A tear is the symptom and tribute of our wants; but, where ill regulated affections refuse the moderate use of these bounties which are assigned to them, ingenuity may continue to torture itself till it ceases to exist, for animated nature extends far beyond the knowledge of the eye. Sympathy, however, is awakened as the intelligence or structure of animals approach ourselves. We are more shocked with the trade of the butcher than the poulterer; and the fisherman, far from exciting a sentiment of disgust, is often the companion of the enlighten-

ed and humane, who share in his toils. Fishes are, perhaps, more the food of man in a savage state, than in a more advanced period of society; still they continue greatly to contribute to his sustenance, their capture is now effected systematically, and their destruction is enormous. Before the present war, 15,000 British seamen were employed in the cod-fishery alone. The Spaniards, the Portuguese, the French, and the Americans, sent out great numbers. The banks of Newfoundland is the scene of this immense fishery; they are represented as parts of a vast mountain under water, above 500 miles long, and near 300 broad. The wide top forms an extensive flat that is perpetually washed with stupendous billows and overhung with thick mists. Hither the cod annually repair in numbers that baffle all calculation, and the fishermen, who take them with hook and line only, draw them as fast as they can throw these out. But, the multitudes thus taken, make no sensible diminution on this prolific tribe. Leuenhock counted 9,394,000 eggs in one cod-fish of a middling size; such an amazing increase, were it not diminished by accidents, and the other tribes, would overwhelm the ocean though it were the food of every nation upon earth. The Arctic seas seem to be their native regions, from whence they issue in such immense shoals; and, having nourished themselves with a plentiful supply of food, which they find in more temperate climates, they regularly return to their northern retreats, and deposit their rows in the full security that these more desert tracks are supposed to afford them. The Cod (Pl. 15.) is found in best condition between the latitudes of 66 and 50. What are caught north or south of those degrees, are either few in quantity or bad in quality. Formerly, the Western Isles and the seas of Iceland were resorted to by all commercial nations for the cod, but since the discovery of Newfoundland, where such shoals are invited by the worms, which swarm in the sandy bottom, the fishery on our coasts has become very limited. The cod weighs from fourteen to forty pounds, those of a middling size are most esteemed for the table. It feeds on small fish, worms, crabs, large whilks, and other

Plate XV.

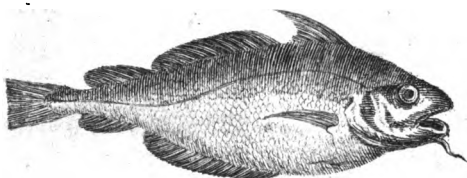
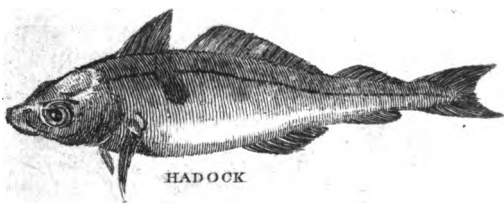
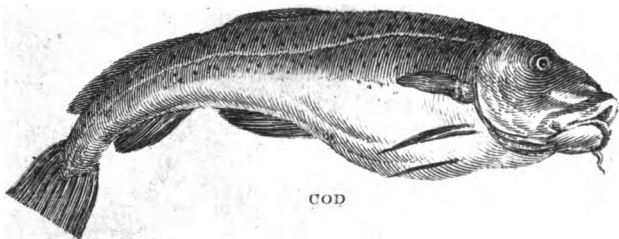
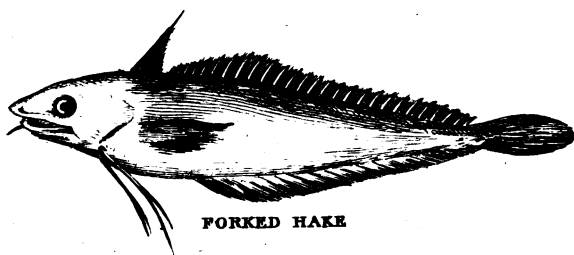
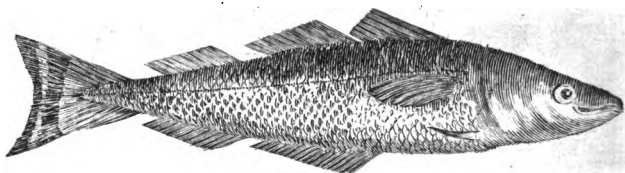
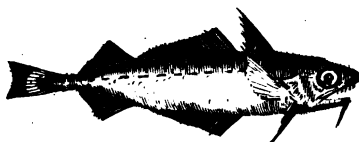
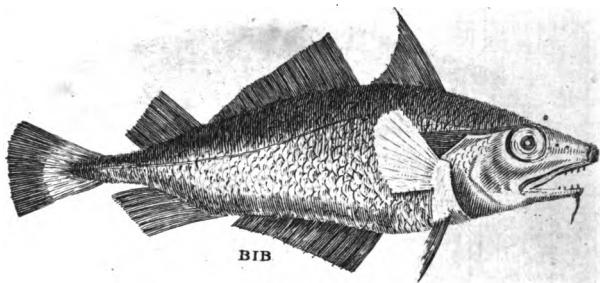


Plate XVI



FISHES.

shell-fish. It is cinereous on the back and sides, and commonly spotted with yellow, the belly is white.

The **HADDOCK** (Pl. 15.) annually visits the British coasts in shoals that sometimes extends along shore above 100 miles in length, and 300 in breadth. On the Yorkshire coast, they keep close to the shore, and such is their numbers, that two or three fishermen will sometimes take as many tons of them in a day; but, beyond their limits, he finds nothing but dog-fish, who have, no doubt, a tendency to pack them together. They are in the greatest perfection about the middle of November, when they begin to row; from the end of January they are out of season, and continue so till May, when they begin to recover; those that are not old enough to begin to breed, are good the whole year round. They live in summer on young herrings, and in winter on a worm, which fishermen call haddock's meat. The common size is about twelve inches. It is distinguished by a large black spot on the sides, which superstition has ascribed to the thumb and finger of St Peter, when he took the tribute out of the mouth of a fish of this species, when it was extended to the whole tribe, who have continued to wear it as a badge in commemoration of that miracle even unto this day.

The **POOR** (Pl. 16.) is the smallest species of cod, being little more than six inches long. It is found in prodigious shoals in the Mediterranean.

The **COAL FISH** (Pl. 16.) takes its name from the black colour it assumes as it grows old. They are common on most of our rocky and deep coasts, and swarm about the Orkneys, where the fry is the support of the poor. In August, they are from three to five inches long, and are esteemed a delicate fish; but, when they attain the length of eight inches, they are coarse; they are commonly two feet and an half long.

The **FORKED HAKE** is not so common on our coasts as in the Mediterranean. It is about a foot long, of a cinereous brown colour; it differs considerably from the

common hake, of which there was once a considerable fishery off the coast of Waterford. The Trifurcated Hake is deep brown, and does not appear to be common on the British coasts.

The LING (Pl. 15) takes its name from its length, being corrupted from the word *Long*. It abounds in the Scotch and Irish seas, and forms a considerable article of commerce. When the fish is split for curing, it must measure twenty-six inches or upward, to be entitled to a bounty allowed on exportation. The usual size is from three to four feet.

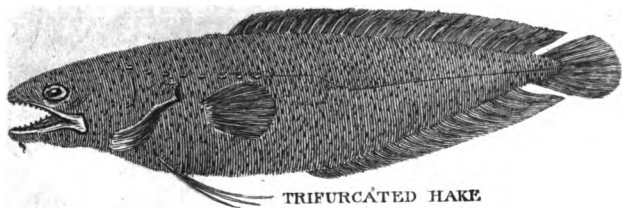
The THREE BEARDED COD (Pl. 17.) grows to the length of nineteen inches. The colour is reddish-yellow, spotted with black.

The FIVE BEARDED COD is brown, and except in the number of beards, resembles the last.

The TORSK (Pl. 17.) is seldom found farther south than the Orkneys; about the Shetland Islands they are found in vast multitudes, and dried or barrelled up for exportation; they form a considerable article of trade; they are about twenty inches long, four and an half deep, the back and sides are yellow, the belly white.

BLENNY. *Genus 26.* **F**ISHES that are supplied with gills cannot exist without air and water. Every one knows how readily they expire when taken out of the water, and the same thing immediately takes place if they have not enough of air; for, in boiled or distilled water, or if the air be exhausted with an air pump, they cannot breathe. Air is as necessary to them as to other animals, and water is necessary to lubricate the fine thready substances of which the layers of the gills are composed. They therefore swallow air and water, which, when the purpose of circulation is effected, are discharged by the gills. But, though fishes with gills, cannot live long in the open air, some of them are more tenacious of life than others, and

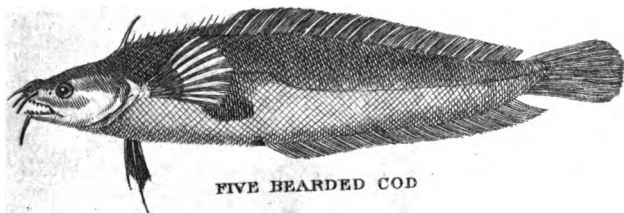
Plate XVII



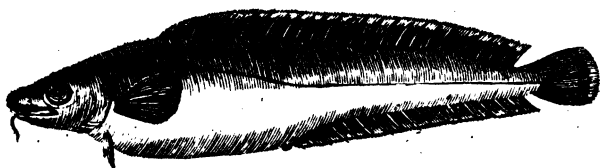
TRIFURCATED HAKE



THREE BEARDED COD

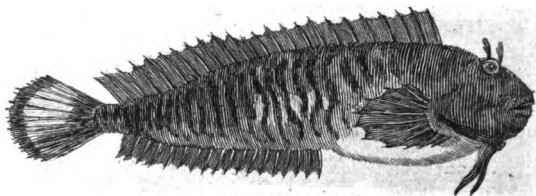


FIVE BEARDED COD



TORSK

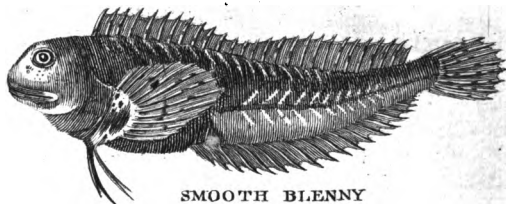
Plate XVIII.



CATTORUGINE



CRESTED BLENNY



SMOOTH BLENNY



VIVIPAROUS BLENNY

among the blennies, there are some that can live nearly a day out of the water.

The GATTORUGIN (Pl. 18.) is about seven inches and an half long, the body is smooth, and compressed in the sides.

The CRESTED BLENNY is four or five inches long; on the head is a crest-like fin, which it can erect or depress at pleasure.

The SMOOTH-BLENNY, like others of this tribe, is extremely active and vivacious; and by the help of its ventral fins, creeps with great facility among the stones, where it is found at low water. It is common on the rocky coast of Anglesea. The colours vary, some are black, generally they are deep olive, prettily marbled with a deeper colour, others are spotted with white.

SECT. III.—THORACIC FISHES.

Where the Ventral Fins are placed beneath the Pectoral Fins.

CEPOLA. Genus. 27.

REMORA. Genus. 28.

CORYPHÆNA. Genus 29.

GOBY. Genus 30. **T**HE black GOBY grows to the length of six inches; the body is soft and slippery, of a deep brown, mixed with dark strokes, and spotted with black. The ventral fins coalesce and form a sort of funnel, by which the fish are affixed immoveably to rocks, for which reason they are called rock fish.

The spotted GOBY is seldom three inches long. It is whitish, with reddish spots on the back and fins.

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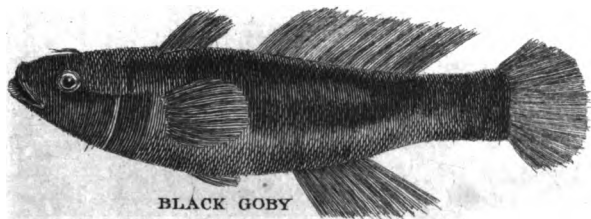
BULLHEAD. *Genus 31.* **A**MONG the many aspects presented by fishes, the river **BULLHEAD** (Pl. 19.) seems only deficient in magnitude to be formidably ugly; but though its head is large for its body, staring and hideous, being flat and thin at the circumference, it is remarkably fitted for insinuating itself under stones, where it is sheltered from its enemies; it seldom exceeds three inches and an half in length; the colour is dusky, mixed with dirty yellow; the belly whittish.

The armed **BULLHEAD** (Pl. 19.) seldom exceeds five inches. The head is large, bony, and very rugged; the body is octagonal, and covered with a number of strong bony crusts, divided into several compartments, the ends of which are pointed, and form prickly lines along the back and sides. It is called Pogge in the north of England.

The **FATHERLASHER** (Pl. 20.) is larger than the former, though on our shores it seldom exceeds eight or nine inches.

DOREE. *Genus 32.* **T**HE **DOREE** (Pl. 20.) is deformity so deformed, that it is almost too odd to be disgusting. The most offensive objects are those which bear a hideous resemblance to such as give us pleasure; but if any one recognises the doree even to be a fish, he must yet believe it is to be covered with a mark. The head is large, the eyes are large, the snout vastly projecting, the mouth very wide. The body is oval, and greatly compressed on the sides; but the colours are very resplendent, being olive, varied with light blue and white. It weighs nine or ten pounds. It is the rival of the haddock for the honour of St Peter's touch. It is a delicious fish, and was introduced to the table of the English epicure by Quin, whose merit as an actor was enhanced by his companionable qualities; but whose benevolence will always be mentioned with affection, when exemplified by his liberality to Thomson.

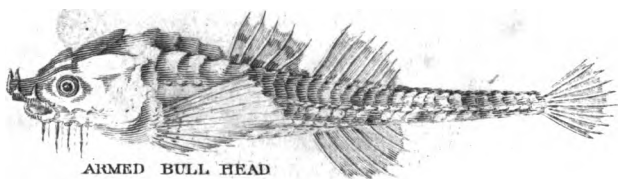
Plate XIX.



BLACK GOBY



SPOTTED GOBY



ARMED BULL HEAD



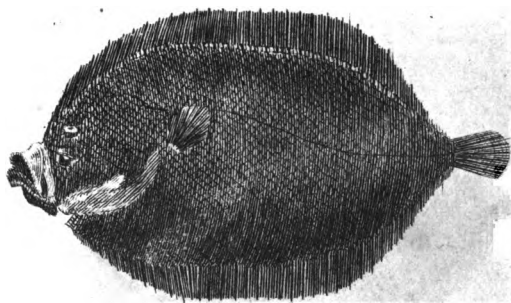
RIVER BULL HEAD



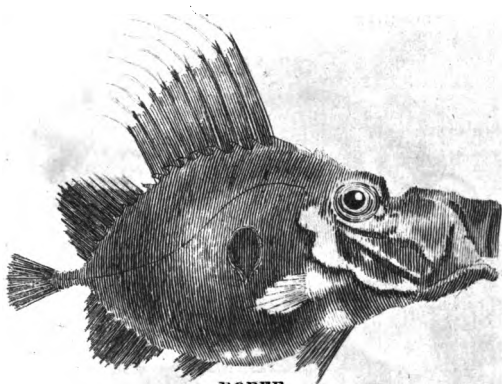
Plate XX.



FATHER LASHER

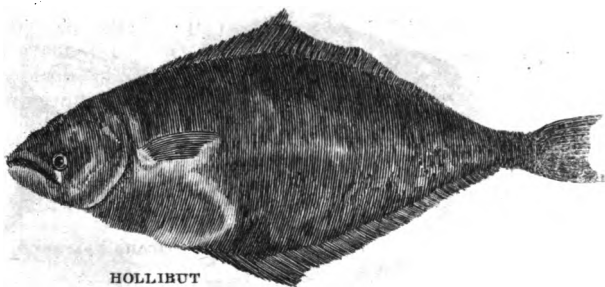


SMEAR DAB

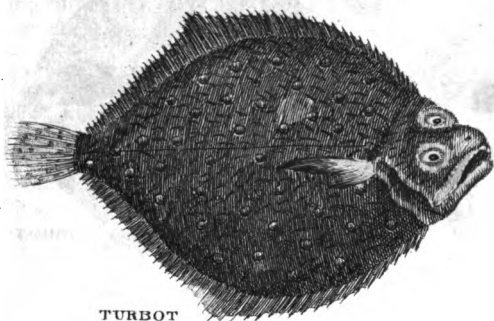


DOREE

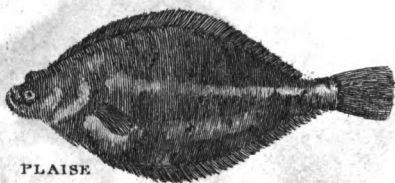
Plate XXI.



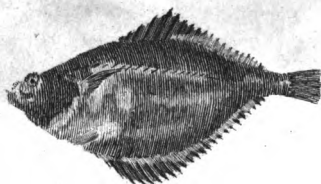
HOLLIBUT



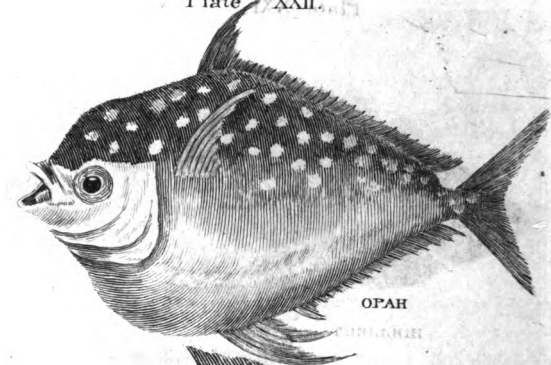
TURBOT



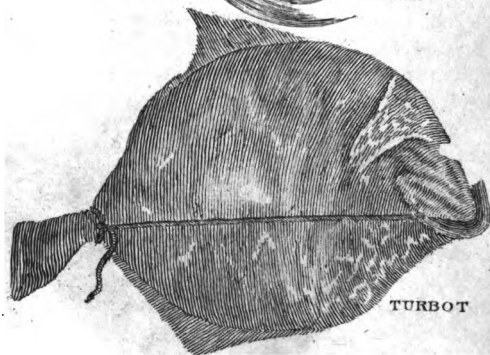
PLAISE



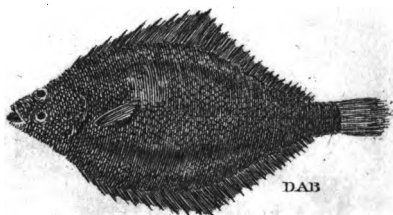
FLOUNDER



OPAH



TURBOT



DAB



SOLE

The **OPAH** (Pl. 22.) weighs in some instances an hundred and forty pounds, and measures four feet and an half in length, by two and a quarter in depth, though the greatest thickness is only four inches. The skin of this beautiful fish is a vivid transparent scarlet, varnished over with burnished gold, bespangled with oval silver spots of various sizes. It has been caught only five times on the British shores.

SCORPOENA. *Genus 33.*

FLOUNDER. *Genus 34.* **W**E have already beheld many families of fishes; of these the whales are generally found on the surface of the water, others are more familiar with the deep; but the tribe of **FLOUNDERS** are always at the bottom of the ocean.

The **HOLIBUT** (Pl. 21.) is the largest of this genus; but in respect to its length, is narrower than any except the sole. Those taken in our seas, sometimes weigh from one to three hundred pounds; but those of Newfoundland, Greenland, and Iceland, are much larger. They are taken with the hook and line in very deep water; they are generally eaten, but except what adheres to the side fins, they are coarse meat. The skin is perfectly smooth, dusky above, and pure white below.

The **PLAISE** (Pl. 21.) is common on our coast; a large fish weighs eight or nine pounds, but it is sometimes found to weigh fifteen. They spawn in the beginning February.

FLOUNDERS (Pl. 21.) are found in all the British seas, and in many rivers at a great distance from salt-water. Fresh-water flounders are sweeter, but never so large as those that live at sea. They are always inferior in size to the plaice, and are distinguished by a row of sharp small spines that surround their upper sides.

F 2

The **DAB** (Pl. 22.) is not so common as the flounder, to which it is superior in delicacy, but of a smaller size. It spawns in May and June.

The **SOLE** is a fish of delicate flavour, but is less so as it grows large; those on the west coast and towards Scarborough, seldom exceed one pound, but on the eastern shore they are sometimes six or seven pounds weight.

The **TURBOT** (Pl. 21. & 22.) grows to a very great size, sometimes weighing from twenty to thirty pounds. They are taken with hook and line by the fishermen of Scarborough, who lay their lines across the current, to an extent of nearly three miles. It is furnished with between two or three thousand hooks, baited with cuts of herring, haddocks, sand-worms, and muscles. The hooks are not above an inch wide from the point to the shank, as experience has shown that a large fish will sooner seize on a living small fish that is hooked, than on any bait whatever. The skin is without scales, wrinkled and mixed with small short spines.

CHÆTODON. *Genus. 35.*

GILTHEAD. *Genus. 36.* **T**HE GILTHEAD (Pl. 23.) takes its name from its colour, the forehead and sides being as if gilt; but the sides are tinged with brown. They are common in the Mediterranean, and are coarse fish.

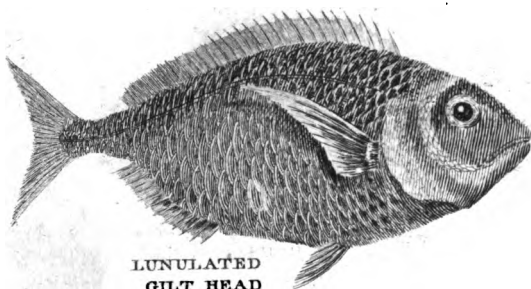
WRASSE. *Genus. 37.* **O**F this kind is the **ICARUS**, anciently in great repute for the salubrity of its flesh.

The **BALLAN** (Pl. 23) visits the British shores, and never exceeds five pounds in weight.

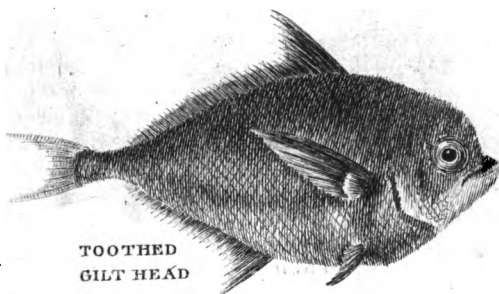
The striped **WRASSE** is about ten inches long; and

The **GIBBOUS** (Pl. 24.) about eight.

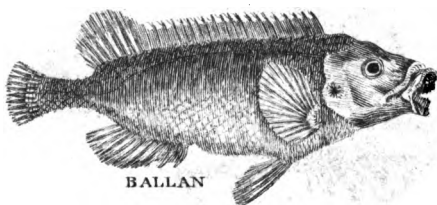
Plate XXIII.



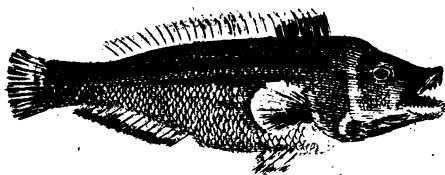
LUNULATED
GILT HEAD



TOOTHED
GILT HEAD

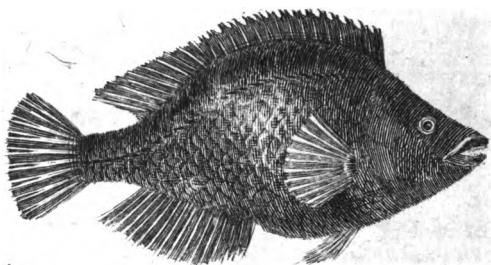


BALLAN

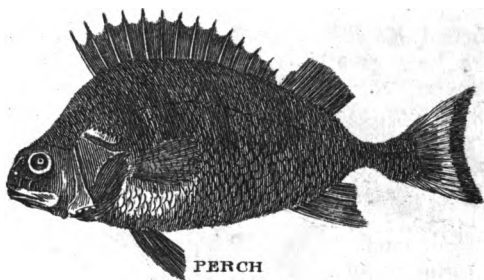


STRIPED WRASSE

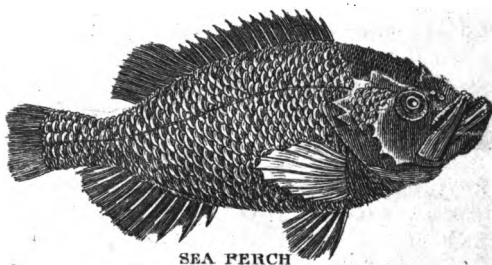
Plate XXV



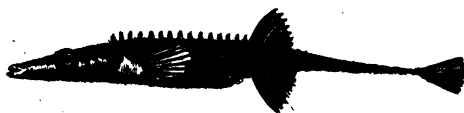
GIBBOUS WRASSE



PERCH



SEA PERCH



STICKLEBACKS



SCOEINA. Genus 38.

PERCH. Genus 39. **O**F thirty-six different species of PERCH, only the common perch, the sea-perch, the baffle, the ruffe, and the black perch, are found in the lakes, and on the coasts of Britain.

The common PERCH (Pl. 24.) seldom grows to a great size, though, in one instance, it has been known to weigh nine pounds. It loves deep holes and gentle streams; and such is its voracity and eagerness to bite that the angler who falls in with a shoal of them, is sure of taking the whole. They are so tenacious of life, that a number of them have been known to survive a journey of sixty miles, carried in dry straw. They are much esteemed as firm and delicate fish. The body is deep, the back arched, the scales rough, the colours beautiful; the back and sides are deep green, marked with five broad bars; the belly is white, tinged with red; the undermost fins are fine scarlet.

The sea PERCH (Pl. 24.) has a large and deformed head, armed with spines. It is of a red colour, and is about a foot in length.

STICKLE-BACK. Genus 40. **E**LEVEN species of STICKLE-BACKS are enumerated, of which three are common in Britain, namely, those with three, ten, and fifteen spines on the back.

Three spined STICKLE-BACKS (Pl. 24.) are seldom two inches long; they are common in many of our rivers, and abound in the fens of Lincolnshire. Every seven or eight years they ascend the Welland in the form of a vast column. It is supposed, that multitudes that have been washed out of the fens by the floods of several years, are collected in some deep hole, till overcharged with numbers, they are obliged to seek a change of place. Their quantity is so great, that they are used to manure the land; and a man employed by the farmer,

has got for a considerable time 4 s. a-day by felling them at an halfpenny a bushel. The sides are covered with bony plates; the eyes are large; the belly prominent; the back and sides are of an olive green.

The ten spined STICKLE-BACK is smaller than the former, the sides are smooth.

The eighteen spined STICKLE-BACK inhabits the sea, and is never found in fresh water; it is above six inches in length, and is covered on the fore-part of the body with bony plates; the back is deep brown.

MACKEREL. *Genus 41.* **T**HE regular migration of many tribes of fishes, is a remarkable circumstance in their history, and bears a striking analogy to birds of passage. It has been supposed, that we owe their visits as much to their fears as to their appetites; but it is probable they approach the shores in quest of food, which is found in greater plenty there than in the depths of the ocean. The MACKEREL (Pl. 25.) regularly visits our shores in very numerous shoals during summer. They are very delicate fish, but, owing to their tenderness, are unfit for long carriage. They are capable, however, of being preserved; and it is surprising that they are pickled and salted only in Cornwall, where they prove a great relief to the poor during winter. They are easily taken with bait; but the capture always succeeds best during a gentle gale; a coloured feather, or a piece of scarlet cloth, is often sufficient for the purpose. It is well known in all the European seas, and was always a favourite dish. It seldom exceeds two pounds in weight; is of an elegant form, and is beautifully variegated with the finest hues of green, blue, and silver.

The TUNNY (Pl. 25.) is well known in the Mediterranean, where there were anciently a very extensive fishery, and where great numbers are still taken on the coasts of Spain and Italy. It grows to a great size. One that was taken on the west coast of Scotland, where they are not uncommon, is described by Mr Penn-

nant, it weighed 460 pounds; it was seven feet ten inches long; the greatest circumference five feet seven, the least one foot. It is known on that coast by the name of Mackelsture, or great mackrel. The body is round; the skin on the back is smooth, thick, and black; the scales are visible on the belly, which is silvery, tinged with pale blue and purple.

SURMULLET. *Genus 42.* **T**HIS fish was highly esteemed by the Romans, and frequently purchased at a most exorbitant price; but the manner of dressing and eating them, is a perfect specimen of the epicurism of the ancient entertainments. It was not reckoned worth a farthing, if the SURMULLET did not, as it were, die in the hand of your guest. There were stews even in the eating-room, so that the fish could at once be brought from under the table and put upon it. It was customary too to put the mullets into transparent vases, that the company might be entertained with the various changes of its rich colours as it lay expiring.

The striped SURMULLET (Pl. 25.) is covered with large scales, which are on the back and sides of a dirty orange, and of a bright yellow on the nose; beneath these, the colour is a beautiful rose-red, which, through the transparent scales, produces a variety of evanescent changes. The eyes are large, the head steep, the body thick; it weighs about two pounds and an half.

GURNARD. *Genus 43.*

The SAPHIRINE GURNARD (Pl. 25.) is distinguished by the breadth and colours of the pectoral fins, which are very broad and long, of a pale green, most beautifully edged and spotted with rich deep blue. It is about two feet long, and is common on the Cornwall coast.

SECT. IV.—ABDOMINAL FISHES.

Where the Ventral Fins are placed behind the Pectoral.

LOCKE. Genus 44. **I**T is not uncommon, when a man has indulged in a piece of folly, to practise it as a good joke. The best joke of a Wiltshire sportsman, is to swallow a living locke in a glass of white wine. The LOCKE (Pl. 25.) seldom exceeds four inches in length. It is found in the gravelly bottom of many of our rivers, and is in some places called the Groundling. The body is smooth and slippery, and almost of the same thickness; it has a beard on the upper jaw; it is elegantly marked with large spots, which consist of a number of little black specks.

AMIA. Genus 45.

SILURUS. Genus 46.

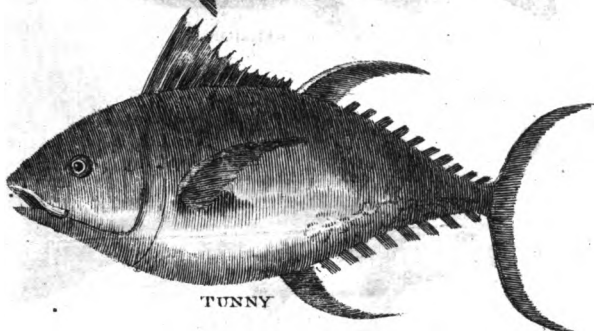
TEUTHIS. Genus 47.

SALMON. Genus 48. **S**ALMON (Pl. 26.) are only found in rivers and lakes that communicate with the sea. They annually ascend rivers, sometimes to the distance of several hundred miles, till they find a gravelly bed fit for receiving their spawn. When a proper place is selected, the male and female unite in digging a pit eighteen inches deep, in which the milt of the male, and the roe of the female, are deposited, and carefully covered up, as is said, with their tails, which, after this period, are observed to be worn bare. From November or December the spawn, if not disturbed by violent floods, lies buried till spring; while, in the mean time, the parent fishes hasten back to purify and strengthen themselves in the sea. About the latter end of March the young swarm in numbers, of which it is difficult to form an idea. The smelts, or fry as they are termed in Scotland, remain in the fresh water till the arrival of a flood, by which they are swept down into the sea. In June the young salmon begin to drop again into the rivers from the sea, and are

Plate XXV.



MACKREL



TUNNY



STRIPED
SURMULLET

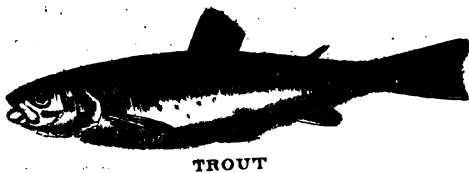
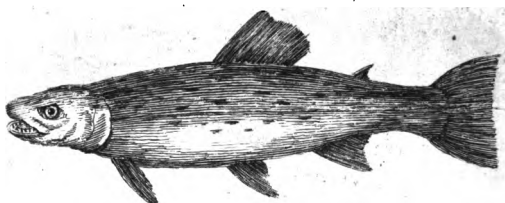
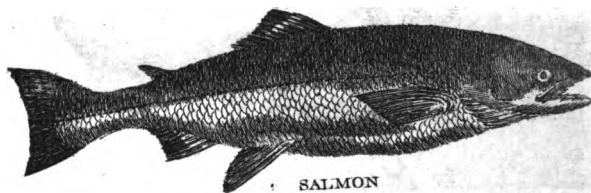


SAPPHIRINE
GURNARD



LOCHE

Plate XXVI



then from twelve to sixteen inches long ; but so amazingly they increase in size, that in August they sometimes weigh eight or nine pounds. All fishermen agree, that they never find food in the stomach of the salmon ; but it is evident that they feed on fish, worms, and insects, as the success of the angler sufficiently evinces. The salmon is unknown in warm climates, but is found in all the northern parts of Europe, Asia, and America ; and are in many places a great article of commerce in these kingdoms ; the principal fisheries are at Colrairie in Ireland, and at Berwick upon Tweed, Perth, &c. From the latter places the London market has long been supplied. Formerly the greater part of them were sent pickled, but of late years they have been sent fresh, by a mode of conveying them in ice. The salmon is an elegant fish, it swims with great force against the most rapid streams, and leapes up cataracts of great height. It often fails, however, to surmount these perpendicular falls, and tumbles back into the water, and thus, in some places, it is caught in baskets placed below the current. The colour of the back and sides is grey, sometimes spotted with black ; the belly silvery.

The SALMON TROUT, or SEA TROUT, has the head and back glossed with blue and green ; the sides are marked with irregular black spots. It migrates, like the salmon, up our rivers. It weighs about three pounds.

The TROUT (Pl. 26.) is admired for the beauty of its colour, and for the delicacy of its flesh. Its colours, however, vary greatly in different waters. In some parts of Wales, the trout is marked with red and black spots as large as sixpences. In Loch Neagh, in Ireland, and Hulse Water in England, the trout sometimes weighs thirty pounds. It is very voracious and possessed of strong digestive powers, feeding on the shell-fish of lakes and rivers, as well as on small fish. The voracity of the trout, by exciting the passions of the angler, leads the way to its destruction ; and, in the neighbourhood of towns, is not unfrequently a source of calamity to its destroyer, a rage for fishing interferes too much with

the time of a man of business, not to be branded as frivolous and expensive only, but as a criminal amusement.

The **SAMLET** or **PAR** (Pl. 26.) is the least of this genus, and has been thought to be the fry of the salmon, but as it never quits the fresh waters, and breeds at a very small comparative size, it is supposed to be a distinct species.

The **CHARR** (Pl. 27.) is found among the lakes of the Lapland Alps, and is almost the only fish that is met with in great abundance in those frigid regions. It is a delicate fish, and is frequent in the lakes of Cumberland, where it is commonly about a foot long.

The **GRAYLING** (Pl. 27.) is a voracious fish, and eagerly takes a bait. It swims very swiftly, and is found in the rivers of Derbyshire.

The **SMOLT** (Pl. 27.) inhabits the northern seas of Europe. Its English name, which is the same as "smell it," is derived from its peculiar scent. In Germany it is distinguished by the elegant name of *Stinckfisch*.

The **GWINIAD** (Pl. 27.) is found in many lakes of the Alpine parts of Europe. It is but insipid food. It soon dies when taken out of the water, and it soon spoils and becomes unfit for eating.

While treating of fishes, it is impossible to pass without mention, the merit of the late Mr Weir, who invented a mode of preserving them with all the splendor and gloss of their colours, and with the durability of stone. Of the Museum at Edinburgh, prepared and collected by him, Lord Gardenstone, in his Travelling Memorandums, says, "I cannot omit to observe, that in the whole course of my travels, I have no where seen the preservation of quadrupeds, birds, fishes, and insects, executed with such art and taste, as by Mr Alexander Weir." This testimony is corroborated by the opinion of every intelligent traveller; but we must regret to add, that this elegant collection is now dispersing, and before this paragraph can be published, Edinburgh,

Plate XXVII.

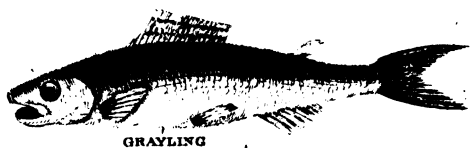
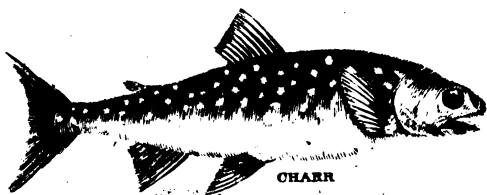
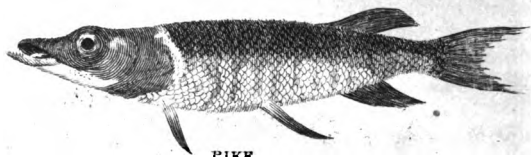


Plate XXVIII.



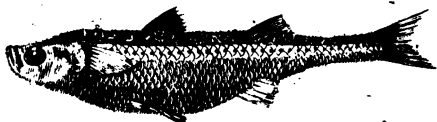
PIKE



SEA PIKE



SAURY



ATHERINE



ARGENTINE

which is daily encreasing in magnitude and splendor, will, for a trifling expence, be deprived of an exhibition, fraught with the most useful knowledge to ourselves, and of extent and beauty to command the respect and excite the admiration of visitors from every country.

PIKE. *Genus 49.* **T**HE PIKE (Pl. 28.) is well known in most of the lakes of Europe as a very voracious fish. Its jaws are very loosely connected, which enables it to swallow substances of great size, but it has been known to be choaked by attempting one of its own species, that proved too large a morsel. It feeds on fish, frogs, water rats, and will draw down young ducks from the surface of the water. In one instance, a pike seized on the head of a swan as she was feeding under water, on the canal of Trentham. The swan was observed to remain in this situation for a longer time than usual, and when it was approached in the boat, both swan and pike were found to be dead. It grows to a great size, and sometimes weighs thirty pounds. It is of a fine green colour, spotted with bright yellow, but when out of season, the green turns grey, and the yellow pale.

The GAR, Sea Pike, or Sea Needle (Pl. 28.) grows to the length of three feet. It is common on our coasts in the beginning of summer, and precedes the mackerel which it resembles in taste. The jaws are very long, slender, and sharp pointed. The colour of the back is green, the sides are enriched with blue and purple.

The SAURY (Pl. 28.) is about eleven inches long. Great numbers of these fish were thrown ashore on the sands of Leith, after a storm in November 1768. It is found in the Mediterranean.

ARGENTINE. *Genus 50.* **T**HIS small fish (Pl. 28.) is compressed, and almost of an equal depth on the body.

ATHERINE. *Genus 51.* **T**HE **ATHERINE** (Pl. 28.) is common near Southampton. It is about four inches long, and is almost transparent.

MULLET. *Genus 52.* **M**ULLETS (Pl. 29.) prefer the shores to the full sea, and are found in several of our sandy bays that are supplied with influxes of fresh water, where they root like hogs among the sand and mud. They are said to be supplied with cunning, which enables them, when surrounded with a net, to escape, by leaping over it. They are excellent food. The back is varied with blue and green.

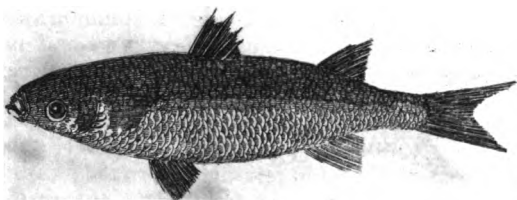
FLYING FISH. *Genus 43.* **O**UT of the frying pan into the fire is a proverb that applies to what has often been observed as the fate of the **FLYING FISH**. In the Mediterranean and Southern seas, where they are perpetually harassed in their own element by dolphins and other voracious fishes, they no sooner ascend into air, which they are enabled to do by the great length of their pectoral fins, than they become the prey of the gull or the albatross, and it is not unfrequent that whole shoals of them fall on board of ships, where a more certain and general destruction awaits them. The flying fish (Pl. 29.) resembles the herring in the form of its body. The instruments of flight are almost as long as the body, the scales are large and silvery.

POLYNEMUS. *Genus 54.*

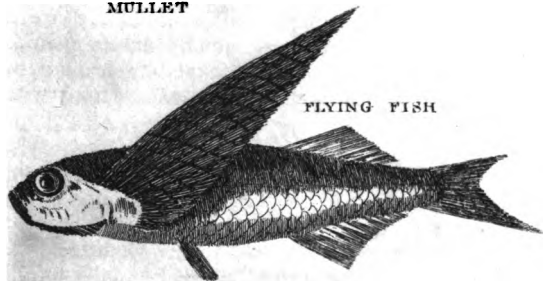
MORMYNIS. *Genus 55.*

HERRING. *Genus 56.* **I**N these times of scarcity, when every necessary of life bears a price that presses exorbitantly hard on the poorer classes of these kingdoms, it is impossible to contemplate the history of the herring without a sense of gratitude for the abundant and inexhaustible supply which they afford of wholesome food. The great win-

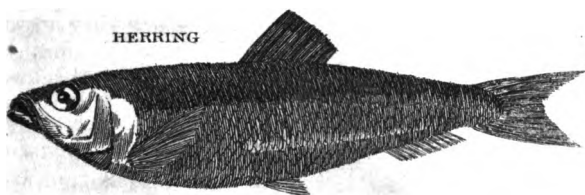
Plate XXIX.



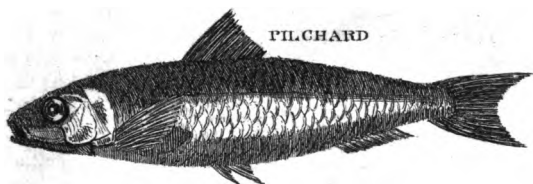
MULLET



FLYING FISH



HERRING

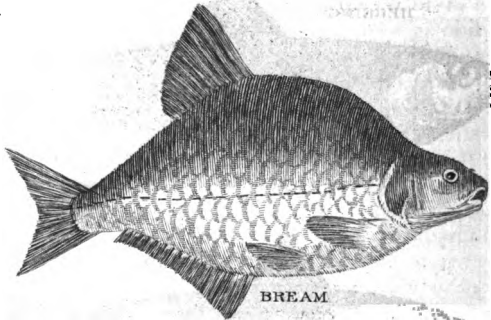
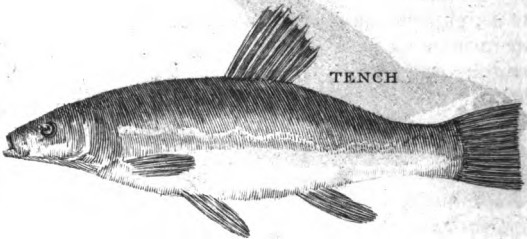
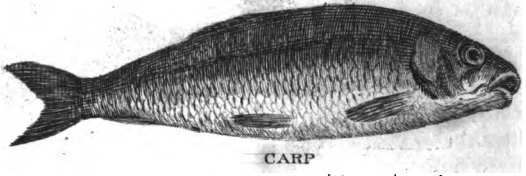


PILCHARD



ANCHOVY

Plate XXX.



CHUB

rendezvous of the herring is within the arctic circle, from whence, in spring, they issue in one innumerable host to climates more congenial to the protection of their offspring. In April and May they appear off the Shetland Islands; and in June the grand shoal is announced, by the number of gannets, and other birds of prey, that attend it. This vast body consists of many columns, five or six miles in length, and three or four in breadth, and alters the appearance of the very ocean, the water being driven before it with a kind of rippling. Sometimes they sink for the space of five or six minutes, then rise again to the surface, and, in bright weather, reflect a variety of splendid colours, that, Mr Pennant observes, is like a field of the most precious gems; in which, or rather in a much more valuable light, should this most stupendous gift of providence be considered by the inhabitants of the British Isles. The grand-shoal is divided by the Shetland Islands into two parts, one takes to the east, the other to the western shores of Great Britain. Those on the western coast, after crowding every bay and creek in the Hebrides, where is the great stationary fishery, proceed to the north of Ireland, where they are again divided into two parts, that which takes the western side is soon lost in the immensity of the Atlantic ocean; but the other, which passes into the Irish sea, rejoices and feeds the inhabitants of most of the coasts that border on it. Such is the general course of the shoals of herrings in our seas, but they are capricious, and quit some parts of the coasts for years together. Some years ago they were scarce in the Frith of Forth, but of late they have been found in great plenty, and sold in the Edinburgh-market from twelve to eighteen for a penny. They are in greatest perfection from June to the beginning of winter, when they begin to deposite their spawn, after which the greatest number are supposed to return to their northern haunts, where they recruit themselves on insect food, which swarm in the arctic seas in a far greater degree than in our warmer regions. Old herrings continue on the coasts the whole year, and the Scarborough fishermen never put down their nets but they catch a few. In Europe they are seldom found farther south than the north coast of France. In Ame-

rica great shoals are found as far south as Carolina. The herring (Pl. 29.) is commonly from nine to twelve inches long. The back and sides are green varied with blue, the belly silvery. The art of pickling herring was invented in Flanders by William Beukelen of Biervelt near Sluys.

The PILCHARD (Pl. 29.) migrates in the same manner, and for the same motive, as the herring, but it affects a warmer latitude; and thus the shoals are more numerous on the southern shores of England, where vast quantities are taken annually. In October 1767, there were at one time inclosed, in St Ives Bay, 7000 hogheads, each containing 35,000 fish, in all two hundred and forty-five millions of pilchards. This fish is very like the herring, but is generally less, rounder in the body, and not so flat on the back.

The ANCHOVY (Pl. 29.) is seldom found in the British seas. Great quantities are taken in the Mediterranean, and exported pickled. It seldom exceeds six inches in length. It is covered with large scales, the back is green and semipellucid, the belly silvery and opaque.

The SHAD (Pl. 31.) is another species of this genus which is found in the rivers of England, and has been called the mother of herrings. It is but indifferent food, and sometimes weighs eight pounds.

CARP. *Genus 57.* **T**HE lakes and rivers of Polish Prussia appear to be the principal residence of the CARP, (Pl. 30.) It is naturalized with us, and kept in ponds. They are so tenacious of life, that they live for a longer time out of the water than other fish. An experiment has been made, by placing a carp in a net, well wrapped up in wet moss, the mouth only remaining out, and then hung up in a cellar, or some cool place, the fish is frequently fed with white bread and milk, and is besides often plunged in water. Carp, thus managed, have been known, not only to live above a fortnight, but to grow exceedingly fat, and far superior in taste to those that are immediately killed

from the pond. The carp with us sometimes weighs twenty pounds. It is thick in shape, the scales are large, and of a fine gilded hue.

The **TENCH** (Pl. 30.) seldom exceeds four or five pounds. It loves still waters, and is rarely found in rivers. In England it is esteemed delicious food, though a different opinion is entertained of it in Germany. It is foolish, and easily caught. The scales are small and covered with slime. The back is dusky, the head, sides, and belly are greenish, most beautifully mixed with gold.

The **BARBEL** (Pl. 31.) is fond of still deep waters, where it is so tame as to be taken with the hand. It is a bad tasted and coarse fish, and the roe is so noxious as to affect those who unwarily eat it with nausea and vomiting. It is sometimes three feet long, the colour of the scales are pale gold.

The **GUDGEON** (Pl. 31.) is of a small size, and generally found in gentle streams, where they are collected by raking the bed of the river; upon this they crowd in shoals to the spot, expecting to find food amidst the disturbance. They bite eagerly, and are easily caught. The back is olive spotted with black.

The **BREAM** (Pl. 30.) is of little value as food, and extremely insipid. It inhabits lakes, and the deep parts of still rivers. It is very deep in the body, and thin in proportion to its length. The scales are very large, the back dusky, the sides yellowish.

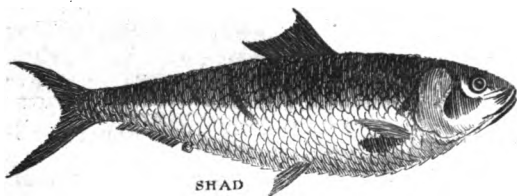
The **CHUB** (Pl. 30.) is a very coarse fish, and full of bones. It frequents the deep holes of rivers, and in summer lies on the surface, commonly beneath the shade of a tree or bush. It is so timid that it sinks to the bottom on every alarm, even on the passing of a shadow, but it soon resumes its situation, and feeds on worms, caterpillars, beetles, and other insects that fall into the water. It sometimes weighs five pounds. It is green on the back, the sides silvery.

The MINNOW (Pl. 31.) is found in shoals in many of our small gravelly streams. It seldom exceeds three inches in length. It is a beautiful fish, slender, and smooth on the body, and covered with small scales. The lateral line is of a golden colour, the back olive, the sides and belly vary greatly in a few, they are rich crimson, in some they are bluish, in others white.

The BLEAK is common in many of our rivers, and seldom exceeds five or six inches in length. Artificial pearls are made of the scales of this fish. They are reduced to a fine powder, and introduced into a thin glass bubble, which is afterwards filled with wax. For this purpose thirty hampers full of these fish have been made use of at Paris in one winter. The *White Bait*, (Pl. 31.) which come up the Thames in innumerable multitudes during the month of July, are supposed to be the fry of the bleak; they are fried with fine flower, and occasion a vast resort of the lower order of epicures to the taverns contiguous to the places where they are taken. Bleaks, at certain seasons, seem to be seized with great agonies, tumble about near the surface of the water, and are incapable of swimming far from the place, but in about two hours recover and disappear. The head, sides, and belly are silvery, the back is tinged with green.

The GOLD FISH, which belongs to this genus, was introduced into England from China, and now breed as freely in the other waters as the carp.

Plate XXXI.



SHAD



WHITE BAIT



BARBEL



GUDGEON



MINOW

OF THE WHALE AND HERRING FISHERY.

 WHALE FISHERY.

EVERY ship is provided with six boats, to each of which belong six men for rowing the boat, and an harpioneer, whose business is to strike the whale with his harpoon. Two of these boats are kept constantly on the watch at some distance from the ship, fastened to pieces of ice, and are relieved by others every four hours. As soon as a whale is perceived, both the boats set out in pursuit of it, and if either of them can come up before the whale finally descends, which is known by his throwing up his tail, the harpioneer discharges his harpoon at him. There is no difficulty in choosing the place where the whale is to be struck, as some have asserted; for these creatures only come up to the surface in order to spout up the water, or *blow*, as the fishermen term it, and therefore always keep the soft and vulnerable part of their bodies above water. A late improvement was made in the method of discharging the harpoon; namely, by shooting it out of a kind of swivel or musquetoon: but it doth not appear, that since this improvement was made, the whale-fishing ships have had better success than before. As soon as the whale is struck, the men set up one of their oars in the boat as a signal to those in the ship. On perceiving this, the watchman alarms all the rest with the cry of *fall fall!* upon which all the other boats are immediately sent out to the assistance of the first.

The whale finding himself wounded, runs off with prodigious violence. Sometimes he descends perpendicularly; at others goes off horizontally, at a small depth below the surface. The rope which is fastened to the harpoon is about 200 fathoms long, and properly coiled up, that it may freely be given out as there is a demand for it. At first, the velocity with which this line runs over the side of the boat is so great, that it is wetted to prevent its taking fire: but in a short time the strength of the whale begins to fail, and the fishermen, instead of letting out more rope, strive as much

as possible to pull back what is given out already, though they always find themselves necessitated to yield at last to the efforts of the animal, to prevent his sinking their boat. If he runs out the 200 fathoms of line contained in one boat, that belonging to another is immediately fastened to the end of the first, and so on; and there have been instances, where all the rope belonging to the six boats has been necessary, though half that quantity is seldom required. The whale cannot stay long below water, but again comes up to blow; and being now much fatigued and wounded, stays longer above water than usual. This gives another boat time to come up with him, and he is again struck with an harpoon. He again descends, but with less force than before; and when he comes up again, is generally incapable of descending, but suffers himself to be wounded and killed with long lances which the men are provided with for the purpose. He is known to be near death when he spouts up the water deeply tinged with blood.

The whale being dead, is lashed along-side the ship. They then lay it on one side, and put two ropes, one at the head, and the other in the place of the tail, which, together with the fins, is struck off as soon as he is taken, to keep these extremities above water. On the off-side of the whale are two boats, to receive the pieces of fat, utensils, and men, that might otherwise fall into the water on that side. These precautions being taken, three or four men with irons at their feet to prevent slipping, get on the whale, and begin to cut out pieces of about three feet thick and eight long, which are hauled up at the capstane or windless. When the fat is all got off, they cut off the whiskers of the upper jaw with an ax. Before they are cut, they are all lashed to keep them firm; which also facilitates the cutting, and prevents them from falling into the sea: when on board, five or six of them are bundled together, and properly stowed; and after all is got off, the carcase is turned a-drift, and devoured by the bears, who are very fond of it. In proportion as the large pieces of fat are cut off, the rest of the crew are employed in slicing them smaller, and picking out all the lean. When this is prepared, they stow it under the deck, where it

lies till the fat of all the whales is on board ; then cutting it still smaller, they put it up in tubs in the hold, cramming them very full and close. Nothing now remains but to sail homewards, where the fat is to be boiled and melted down into train-oil.

HERRING FISHERY.

OF the the Scots fishery in the Western Isles, the following account is given by Mr Pennant. " The fishing is always performed in the night, unless by accident. The buffes remain at anchor, and send out their boats a little before sun-set ; which continue out, in winter and summer, till day-light ; often taking up and emptying their nets, which they do ten or twelve times in a night, in case of good success. During winter it is a most dangerous and fatiguing employ, by reason of the greatness and frequency of the gales in these seas, and in such gales are the most successful captures : but, by the Providence of heaven, the fishers are seldom lost ; and, what is wonderful, few are visited with illness. They go out well prepared, with a warm great-coat, boots, and skin aprons, and a good provision of beef and spirits. The same good fortune attends the buffes, which in the tempestuous season, and in the darkest nights, are continually shifting, in these narrow seas, from harbour to harbour. Sometimes 80 barrels of herrings are taken in a night by the boats of a single vessel. It once happened, in Loch-Slappin, in Skie, that a buss of 80 tons might have taken 200 barrels in one night, with 10,000 square yards of net ; but the master was obliged to desist, for want of a sufficient number of hands to preserve the capture. The herrings are preserved by salting, after the entrails are taken out. This last is an operation performed by the country-people, who get three-halfpence per barrel for their trouble ; and sometimes, even in the winter, can gain fifteen pence a-day. This employs both women and children ; but the salting is only entrusted to the crew of the buffes. The fish are laid on their backs in

the barrels, and layers of salt between them. The entrails are not lost, for they are boiled into an oil: 8000 fish will yield ten gallons, valued at one shilling the gallon. A vessel of 80 tons takes out 244 barrels of salt; a drawback of 2s. 8d. is allowed for each barrel used by the foreign or Irish exportation of the fish; but there is a duty of 1s. per barrel for the home consumption, and the same for those sent to Ireland. The barrels are made of oak staves, chiefly from Virginia; the hoops from several parts of our own island, and are either of oak, birch, hazel, or willow; the last from Holland, liable to a duty. The barrels cost about 3s. each, they hold from 500 to 800 fish, according to the size of the fish; and are made to contain 32 gallons. The barrels are inspected by proper officers: a cooper examines if they are statutable and good; if faulty, he destroys them, and obliges the maker to stand to the loss.

“ Loch-Broom has been celebrated for three or four centuries as the resort of herrings. They generally appear here in July; those that turn into this bay are part of the brigade that detaches itself from the western column of that great army which annually deserts the vast depths of the arctic circle, and come, heaven-directed to the seats of population, offered as a cheap food to millions, whom wasteful luxury, or iron-hearted avarice hath deprived, by enhancing the price of the wonted supports of the poor. The migration of these fish from their northern retreat is regular; their visits to the Western isles and coasts certain; but their attachment to one particular loch, extremely precarious. All have their turns: that which swarmed with fish one year, is totally deserted the following; yet the next loch to it may be crowded with the shoals. These changes of place give often full employ to the buffes, who are continually shifting their harbour in quest of news respecting these important wanderers. They commonly appear here in July; the latter end of August they go into deep water, and continue there for some time, without any apparent cause: in November, they return to the shallows, when a new fishing commences, which continues till January; at that time the herrings become

full of roe, and are useless as articles of commerce. Some doubt, whether those herrings that appear in November are not part of a new migration; for they are as fat, and make the same appearance, as those that composed the first. The signs of the arrival of the herrings are flocks of gulls, who catch up the fish while they skim on the surface; and of gannets, who plunge and bring them up from considerable depths. Both these birds are closely attended by the fishers. Cod-fish, haddocks, and dog-fish, follow the herrings in vast multitudes; these voracious fish keep on the outsides of the columns, and may be a concurrent reason of driving the shoals into bays and creeks. In summer, they come into the bays generally with the warmest weather, and with easy gales. During winter, the hard gales from north-west are supposed to assist in forcing them into shelter. East winds are very unfavourable to the fishery."

Herrings are cured either white or pickled, or red.

Of the *fish*, those done by the Dutch are the most esteemed, being distinguished into four sorts, according to their sizes; and the best are those that are fat, fleshy, firm, and white, salted the same day they are taken, with good salt, and well barrelled. The British cured herrings are little inferior, if not equal, to the Dutch; for in spite of all their endeavours to conceal the secret, their method of curing, lasting, or casking the herrings, has been discovered, and is as follows. After they have hauled in their nets, which they drag in the stern of their vessels backwards and forwards, in traversing the coast, they throw them upon the ship's deck, which is cleared of every thing for that purpose: the crew is separated into sundry divisions, and each division has a peculiar task; one part opens and guts the herrings, leaving the melts and roes; another cures and salts them, by lining or rubbing their inside with salt; the next packs them, and between each row and division they sprinkle handfuls of salt; lastly, the cooper puts the finishing hand to all, by heading the casks very tight, and stowing them in the hold.

Red herrings must lie twenty-four hours in the brine, in as much as they are to take all their salt there; and when they are taken out, they are spitted, that is, strung

by the head on little wooden spits, and then hung in a chimney made for that purpose. After which, a fire of brush-wood, which yields a deal of smoke but no flame, being made under them, they remain there till sufficiently smoked and dried, and are afterwards barrelled up for keeping.

DESCRIPTION of Proper BAITS for the several sorts of FISH referred to in the annexed Table.

FLIES. 1. Stone-fly, found under hollow stones at the side of rivers, is of a brown colour, with yellow streaks on the back and belly, has large wings and is in season from April to July. 2. Green drake, found among stones by river-sides, has a yellow body ribbed with green, is long and slender, with wings like a butterfly, his tail turns on his back, and from May to midsummer is very good. 3. Oak-fly, found in the body of an old oak or ash, with its head downwards, is of a brown colour, and excellent from May to September. 4. Palmer-fly or worm, found on leaves of plants, is commonly called a *caterpillar*, and when it comes to a fly is excellent for trout. 5. Ant-fly, found in ant-hills from June to September. 6. The May fly is to be found playing at the river-side, especially against rain. 7. The black fly is to be found upon every hawthorn after the buds are come off.

PASTES. 1. Take the blood of sheeps hearts, and mix it with honey and flour worked to a proper consistence. 2. Take old cheese grated, a little butter sufficient to work it, and colour it with saffron: in winter use rusty bacon instead of butter. 3. Crumbs of bread chewed or worked with honey or sugar, moistened with gum-ivy water. 4. Bread chewed, and worked in the hand till stiff.

WORMS. 1. The earth-bob, found in sandy ground after ploughing, it is white, with a red head, and bigger than a gentle; another is found in heathy ground,

with a blue head. Keep them in an earthen vessel well covered, and a sufficient quantity of the mould they harbour in. They are excellent from April to November. 2. Gentles, to be had from putrid flesh : let them lie in wheat-bran a few days before used. 3. Flag-worms, found in the roots of flags ; they are of a pale yellow colour, are longer and thinner than a gentle, and must be scowred like them. 4. Cow-turd-bob, or clap-bait, found under a cow-turd from May to Michaelmas ; it is a gentle, but larger. Keep it in its native earth like the earth-bob. 5. Cadis worm, or cod-bait, found under loose stones in shallow rivers ; they are yellow ; bigger than a gentle, with a black or blue head, and are in season from April to July. Keep them in flannel bags. 6. Lob-worm, found in gardens ; it is very large, and has a red head, a streak down the back, and a flat broad tail. 7. Marsh-worms, found in marshy-ground : keep them in moist ten days before you use them : their colour is a bluish red, and are a good bait from March to Michaelmas. 8. Brandling red worms, or blood-worms found in rotten dunghills and tanner's bark ; they are small red-worms, very good for all small fish, have sometimes a yellow tail, and are called *tag-tail*.

FISH and INSECTS. 1. Minnow. 2. Gudgeon. 3. Roach. 4. Dace. 5. Smelt. 6. Yellow frog. 7. Snail slit. 8. Grasshopper.

An Epitome of the whole art of FISHING, wherein is shown (at a
fish usually angled for; and the various baits for each.

Names.	Where found.	Season.	Time to angle.
Bream	rough str. river or mid. pond	April to Mich.	Sun-rise to 3 to Sun-f
Barbel	gravel-banks in currents under bridges	April to Aug.	very early late
Bleak	sandy bottom, deep rivers, ships sterns	May to Oct.	all day
Carp	still deep mud-bottom, pond or river	May to Aug.	Sun-rise to 3 to Sun-f
Chub or } Chivin }	ditto	May to Dec.	ditto
Dace	sandy bottom, deep rivers, ships sterns	May to Oct.	all day
Gudgeon	gravel shoals	May to Oct.	ditto
Pike	near clay-banks	All the year.	ditto
Pearch	} river in stream } gravel } pond deepest part } or weedy } deep holes in rivers } bottom	May to Aug.	S.-rise to 12 to Sun-f
Pogee		Aug to May.	mid-day
Roach		May to Oct.	all day
	sandy bottom, deep rivers, ships sterns	May to Oct.	ditto
Salmon	deep rivers	Mar. to Sept.	8 to 9, 3 to
Smelts	ships sterns and docks	Apr. to Oct.	all day
Trout	purling streams and eddies of stony bottom rivers	Mar. to Mich.	ditto
Tench	mud-bottom river or pond	All the year.	Sun-rise to 3 to Sun-f
Umber or } Grayling }	clay bottom, swift stream	All the year.	all day

), the harbours, seasons, and depths, for catching all sorts of

Depth from ground.	Proper Baits.			
	Flies No	Pastes. No	Worms. No	Fishes and Insects. No 8.
touch ground		1 3	1 to 7	
ditto		2	2 6 7	
6 inches from bottom	1 2	2	2 3 8	1
12 inches from bottom		1 3 4	1 2 3 4 7	
at weather, mid-water				
ditto	1 to 5	2	1 2 4 5	7 8
12 inches from bottom	ditto	3 4	1 to 5 & 8	
near or on ground		ditto	2 8	
mid-water.	wh. floo. and snap	line float hook fixt	on shore	1 2 3 4 5 6 7
ditto	2	1	3 5 7 8	1 6
6 inches from bottom				
ditto	5		all	
6 to 12 inches	1 2 4 5	3 4	ditto	8
mid-way to the bottom	All large		1 5 6 7	1
mid-way to the bottom	All small		1 2 5	bits of smelts
variable				
at weather, 6 inches to 9	1 to 6		1 2 5 to 8	1 8
at weather, top to mid-wat.				
at wea. 3 inch. from bot.		1 3 4	1 3 4 to 7	
at weather mid-water.				
at weather, 6 to 9 inches	1 to 5		all	1 8
at weather, top to mid-wat.				

ARTIFICIAL FLY.

The artificial fly is seldom used but in blustering weather, when the waters are so troubled with the winds, that the natural fly cannot be seen nor rest upon them. They are made with wool and silk, in imitation of the body, and of partridge, peacock feathers, in imitation of the wings of the insects peculiar to the time of the year. The best rules for artificial fly-fishing are,

1. To fish in a river somewhat disturbed with rain; or in a cloudy day, when the waters are moved by a gentle breeze; the south wind is best; and if the wind blow high, yet not so but that you may conveniently guard your tackle, the fish will rise in plain deeps; but if the wind be small, the best angling is in swift streams.
2. Keep as far from the water-side as may be; fish down the stream with the sun at your back, and touch not the water with your line.
3. Ever angle in clear rivers, with a small fly and slender wings; but in muddy places, use a larger.
4. When, after rain, the water becomes brownish, use an orange fly; in a clear day, a light-coloured fly; a dark fly for dark waters, &c.
5. Let the line be twice as long as the rod, unless the river be encumbered with wood.
6. For every sort of fly, have several of the same, differing in colour, to suit with the different complexions of several waters and weathers.
7. Have a nimble eye, and active hand, to strike presently with the rising of the fish; or else he will be apt to spue out the hook.
8. Let the fly fall first into the water, and not the line, which will scare the fish.
9. In slow rivers, or still places, cast the fly across the river, and let it sink a little in the water, and draw it gently back with the current.

Salmon-flies should be made with their wings standing one behind the other, whether two or four. This fish delights in the gaudiest colours that can be; chiefly in the wings, which must be long, as well as the tail.

NATURAL HISTORY

OF

INSECTS.

WHILE quadrupeds are in general confined to the land, and fishes to the water, while birds are enabled to rise on the air, the insect tribes pervade all of these elements in numbers that defy computation. A complete history of so numerous a class will perhaps never be effected, and to detail all the curious matters already known of the insect tribe, would extend to a great work. Our limited plan will not admit of being particular; but without overlooking those singularities which characterise the different tribes, the following general observations, extracted from the Natural History, in three volumes, of 1792, will perhaps better introduce to the regard of the reader, this multifarious class of animals.

The number of experiments and observations necessary to furnish a complete history of so many small animals, is not only great; but the difficulty of making them is also immense. The number of ideas with which a skilful botanist must load his memory, before he can acquire an accurate knowledge of above two thousand plants, is no doubt great: his task, however, bears no proportion to that of the entymologist; for, amidst so many plants, there is perhaps hardly one that does not furnish nourishment and an habitation to several insects; while many, such as the oak, afford a retreat for some hundreds of different species. These plants, however, are far from being the only abode of insects; vast numbers reside upon the larger animals, whom they continually suck; many live upon and devour others of their own order. Infinite numbers spend a part of their lives in the water; others remain there entirely: The earth

swarms with multitudes ; and the air teems with others, too small for the human eye to observe, and too numerous for the imagination to conceive !

While the numbers of this class of the animal kingdom thus exceed all our powers of conception, its varieties are also multiplied to a degree that renders a complete discrimination of them equally impossible. The different species of insects are not only numerous, but each has its own distinct history, and exhibits manners, appetites, and modes of propagation peculiarly its own. In the larger ranks of existence, two animals that nearly resemble each other in form, will be found to have a similar history ; but here, insects almost entirely alike will be found very dissimilar in their habits, and in the different changes which they undergo during their short lives.

But although a complete history of the operations of nature, in this large and populous part of her empire, cannot be expected ; yet, such a general picture may be given, as shall demonstrate the existence of that great vivifying principle by which she is animated, and by which she is enabled continually to pour forth into existence such immense numbers of organized beings. A history of such insects as most frequently occur, and whose manners are best known, will present to us a pleasing view of that protection which Providence affords even to the smallest of its creatures ; of the means it employs for perpetuating them, and of that great arrangement of nature, by which one set of living beings find subsistence, by devouring another, and by which life is continued through every part of the creation, without a pause.

Natural history claims it as its prerogative to demonstrate the existence and the perfections of that Creative Power which produced, and which governs the universe : It is the history of the works of God, and naturally leads every intelligent mind to their Author ; for there are no proofs of his existence more level to the apprehension of all, than those which it offers to the understanding. No rational man can ever blush for having placed among his occupations a study which has for its object the works of the Supreme Being ; which leads

him to the contemplation of their Author. All those naturalists who have described the different parts of the animal kingdom, have willingly confessed them to be productions of infinite power and wisdom; and seem to regret, that the experiments and observations relating to their history are not more numerous; because, in proportion as they are extended, the proofs of a creative Power are multiplied.

The degree of intelligence allotted to insects is but very small; and our experience, as far as it goes, coincides with this opinion. While other animals are capable of some degree of education, these have one invariable mode of operating, which no art can either alter or improve. The dog is taught to carry; the bird to whistle a tune; but those insects which may be considered as completely domesticated, can by no invention be turned from their instinct. The silk worm completes its labours, and the spider constructs its web, invariably in the same manner: An existence which continues but a single season, seems too short for the purposes of instruction, or of learning. Hence the insects are not only of a rank inferior to the other animals, but many of them seem more nearly allied to the vegetable than to the classes above them.

It has long been a received opinion, that hearing is denied to insects; or at least, that the existence of this sense is very equivocal. Many of them, however, are endowed with the power of uttering sounds; as the bee, the fly, the gnat, and the beetle. The *sphinx atropos* squeaks when hurt, nearly as loud as a mouse; it has even the power of uttering a plaintive note, in certain circumstances, which excites commiseration. In general, the power of uttering sounds agreeable to the feelings and necessities of animals, is conferred on them for the purpose of communicating these feelings to the rest of their kind; the same, probably, is the case with the insect tribe.

If a bee or wasp be attacked near the hive, the consequence of this assault commonly is, that the animal expresses its pain or indignation in a tone different from its ordinary noise; the complaint is immediately understood by the hive within, when the inhabitants hurry

out to revenge the insult, in such numbers that the offending party seldom comes off with impunity. The same evidence of hearing is continually afforded by the spider: Often his webs are of such an enormous length, that he cannot see from the one end of them to the other; often too, in watching for his prey, he conceals himself in some adjoining crevice, where he cannot see those animals that are ensnared in his toils. The fly, however, no sooner finds itself entangled, than it makes a buzzing noise, in order to escape; this noise is instantly heard and understood by the spider, who sallies forth from his concealment, and riots in the spoil, with all the eagerness and ferocity which distinguishes the most rapacious animals.

But, besides the sense of hearing, it seems highly probable that insects possess also that of smell. As many of them live on bodies in a state of putrefaction, around which, when exposed, they are seen immediately to collect themselves, the conclusion seems obvious, that they are possessed of organs fitted to direct them to their food. Those which feed on herbs, flowers, or fruits, seem in the same manner to require senses adequate to their pursuits. It has therefore been supposed, and not without an appearance of probability, that the *palpi*, or feelers, are also the organs of smell in the insect tribe.

The organs of vision among most kinds of insects are large; a circumstance which has put their sense of seeing beyond a doubt. Hence it appears, that though insects are destined to fill a subordinate station in the animal kingdom, yet nature has by no means neglected them, but furnished them with organs wonderfully adapted to their humble pursuits, and to that transient existence which she has assigned them.

The different changes of form which many insects undergo, from their first appearance as eggs, till they arrive at their perfect and winged state, constitute an important article in their history.

A fly, a spider, or an ant, insects of the most different kinds in outward appearance, do not differ more widely than the same insect does from itself, under the different forms of a worm, a chrysalis, and a butterfly. What is at present a worm, however, soon becomes a

chrysalis, which is again as suddenly to be changed into a winged animal. Changes apparently so instantaneously produced, have been compared to the metamorphoses so renowned in ancient fable, and probably at first suggested the idea of those transformations which fable has rendered so celebrated.

But a sudden metamorphosis is not among the expedients which nature employs for the production of her offspring. *Maphigi* and *Saundersdam*, who carefully examined those insects that appear under different forms, by dissecting them a short time before the period of their transformation, observed that their first form was owing to a covering under which their different members were to acquire their proper size and firmness: That all the parts of a butterfly, for example, were perfectly distinct under the skin of the worm which covered them; and that under the crustaceous shell of the chrysalis, they were still acquiring greater degrees of strength; and were fast approaching to that state in which they were destined to appear, when the animal should arrive at perfection, and be able to propagate its kind.

From the experiments of these naturalists it appeared, that all the parts of the most perfect winged insect were distinctly formed, and gradually acquired size and strength, under the different forms of a worm and a chrysalis, and that its progress and growth proceeded rather by developments, than by a real change: All the marvellous ideas conveyed by the terms transformation and metamorphosis thus vanished; and a beautiful analogy was established between the growth of all organised beings, whether in the animal or vegetable kingdoms.

To those who can derive no pleasure from the pursuits and studies of a liberal mind, and who feel no satisfaction in any employment that is not attended with immediate profit, the researches of the entymologist cannot seem altogether useless. Had the operations of the silk worm never been examined, how could men have availed themselves of the labour of an insect that administers so profusely to our luxuries and our wants? It was not to the unobserving that it first occurred, that the produce of that animal's labour might be converted

into a considerable article of commerce, and might give rise to many arts, and afford subsistence to thousands of manufacturers. In the same manner, wax and honey enter into the articles of commerce, and add to our enjoyments. It cannot, therefore, be denied, that they were profitably employed, who first observed the industry of the bee; who brought that animal from its native woods, introduced it into our gardens, and, by domesticating it there, have rendered it subservient to our enjoyments.

The Chinese, whose progress in many of the arts is superior to that of any other nation, avail themselves of the labours of certain insects, in procuring a rich dye, and an elegant varnish, which is provided by a certain species of winged ant. It is certain, that our finest red colours are furnished by insects. Cochineal, the extensive and profitable uses of which have been long known, is now universally allowed to be an insect, which is propagated with care, and in vast numbers, in the kingdom of Mexico. The *kermec*, or grain of scarlet, which was formerly imagined to be one of the galls or excrescences that are seen on shrubs, is now understood to be an insect, which attaches itself in that form to a species of the oak.

The medical uses of certain insects are far from being inconsiderable; and to these purposes they have long been applied, perhaps more frequently, and with better effect, than at present. The valuable purposes to which the cantharides has been made subservient, will alone vindicate the utility of those researches which have been made concerning this part of the animal kingdom.

But there are other inducements to the study of insects, of a nature totally different from those already mentioned; inducements, founded not on any hope of advantage to be derived from these animals, but of alleviating or preventing the numerous mischiefs they occasion. Infinite swarms of these animals annually desolate whole provinces; others attack our gardens and cultivated grounds, where they commit endless devastations upon the corn, vegetables, and fruit trees. Nor are their depredations confined to the fields; they enter the habitations of man, and by destroying the tim-

ber, gradually reduce them to ruins. They destroy his furniture and cloathing; some of them spare not even his person, tormenting it long before the period which nature has destined it to become their legitimate prey.

Our subsistence, in almost every stage of its progress, is constantly exposed to the intrusions of these enemies of human industry. Flour, biscuit, and almost every kind of provision, even after it is barrelled up for exportation, is liable to be devoured, or rendered useless, by the depredations of the most hideous animals. The patriotism of the statesmen, and their zeal for the good of mankind, could not receive a nobler or more useful direction than in holding out rewards to such as might discover the most effectual means of preventing the ravages of those animals, who, by the most destructive activity, are continually converting large stores of provisions into so many masses of corruption.

May it not be hoped, that by a careful study of the nature of insects, some means may be discovered to prevent them from penetrating into the joists of buildings and thereby reducing them into dust, and effecting the destruction of the most costly edifices. How often do we find wooden furniture destroyed by insects, which might have answered the purposes for which it was intended for ages, had it been preserved from the destructive attacks of these animals? How many accidents are probably occasioned at sea by those formidable worms, whose heads are armed with hard shells, and who are thereby enabled to gnaw through the thickest vessels, and make perforations under the water? The alarms they have frequently occasioned in Holland, by introducing themselves and multiplying among those wooden stakes which support their dikes, are universally known. The naturalist who should discover a mode of preventing such devastations, would certainly deserve well of his country and of mankind, by communicating information that tended so directly to the public good.

The tar extracted from coal by that ingenious nobleman the Earl of Dundonald, when better known, will probably be found an efficacious remedy against the corrosions of wood by insects in all cases where it can be applied. It not only penetrates so deeply into wood that

it cannot be washed away; but is of so acrid a substance, as must inevitably destroy worms. The intolerable effluvia which it emits, will, however, prevent its application in the case of household furniture.

The pernicious genus of phalana, which contains all the different species of moths, makes still nearer approaches to man in the hostilities which it commits. No person is ignorant of the destructive quality of these insects to woollen cloth, and all kinds of fur and wearing apparel.

After all, however, it will readily be allowed, that in pursuing the history of insects, the number of useful observations with which it presents the reader, bear but a small proportion to those whose object is merely to gratify curiosity. But in what science is there nothing to be found but what is immediately useful? and are not objects of curiosity often nearly allied to those of utility? Is it not while we amuse ourselves with the former, that we are most frequently led to the discovery of the latter?



ORDER I.

COLEOPTEROUS INSECTS;

Where the Wings are covered with a Crust or Case.

SCARABAEUS. Genus 1. **T**HE MAY-BUG, the DORR-BEETLE, or COCK-CHAFER, like all the rest, has a pair of cases to its wings of a reddish brown colour. About the latter end of May these insects, after having lived four years under the ground, come abroad to enjoy the summer in open air. The observer who walks in the fields in a mild evening, at this season, will see them bursting up before him in his pathway like ghosts in a theatre; and every part of the earth that has its surface beaten into hardness perfora-

Plate I.

ORDER I.

GENUS I.
SCARABÆI, BEETLES.

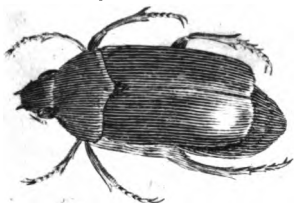
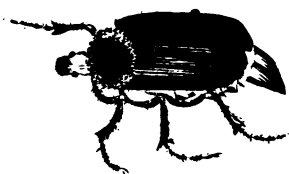
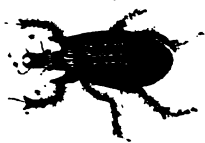
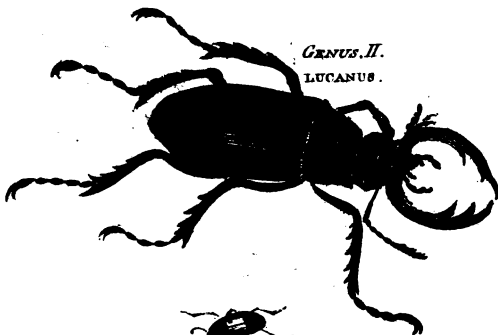


Plate II.

GENUS. II.
LUCANUS.



GEN. V.
HISTER.



GEN. III.
DERMESTES.



GEN. IV.
PTINI.



GEN. VII. BYRRHUS.



GEN. VI.
GYRINUS.



GEN. XI.
CHRY SOMELA.



GEN. VIII.
SILPHA.



GEN. IX.
CASSIDA.



GEN. XIII.
BRUCHUS.



GEN. XII.
HISPA.



GEN. X
COCOINELLA.



ted. When the season is favourable for them, they are seen in myriads buzzing along, and hitting against every object that intercepts their flight. The mid-day sun seems too powerful for them, they then lurk under the shadow of trees, particularly willows, which they seldom quit till they have devoured their verdure. They never survive the season. It is in this state the female perforates the ground, with an instrument fitted for that purpose, and lays her eggs to the number of three score. In about three months the insect, in each of the eggs, breaks the shell, and crawls forth in the state of a small grub or maggot, and feeds on the roots of whatever vegetable it happens to be nearest. In this state the voracious creature continues for more than three years, devouring the roots of every plant it approaches, and making its way under ground with great dispatch and facility. It acquires the size of a walnut, being a large thick white maggot with a red head, most frequently seen in new turned up earth, and which is so eagerly sought after by birds of prey. It has no eyes, but is furnished with two feelers, which, like the crutch of a blind man, serve to direct its motions. About the end of autumn, in the fourth year, it perceives the approaches of a transformation, and buries itself deeper in the ground, where it forms a capacious apartment, rendered smooth and shining, with the exertions of its body. It now bursts its skin, and assumes the form of a chrysalis, in which state it remains about three months longer; and in the end of January becomes a completely winged insect. Unlike other insects, however, it undergoes a kind of infant imbecility, its parts are soft, it is feeble and sickly, but gradually grows healthy and strong, and takes its flight, as already described, in the end of May.

The DUNG-BEETLE, though little larger than the common black beetle, is possessed of such strength, that, when put under a brass candlestick, it will move it backwards and forwards as if it were by an invisible hand. Its sense of smell is very acute. They assist each other in making round balls or pellets of dung, in which their eggs are hatched. These they bury three feet deep in

the earth, where they lie till the spring, when the insects find their way out into the air.

Many insects of this genus are extremely beautiful. The GOLDEN BEETLE rivals the emerald. They are of very different sizes, some being no larger than the head of a pin, while others, such as the elephant beetle, are as large as one's fist; but the greatest difference among them is, that while some of them take three or four years to become winged insects, others go through all the stages of their existence in a single season.

LUCANUS. *Genus 2.* **T**HE STAG-BEETLE is the largest of this kind, and has large moveable maxillæ, which resemble the horns of a stag, and with which they tear the bark of trees. Their chief residence is on the oak, where they feed on the liquor that exudes from it; their grubs lodge under the bark, which they gnaw and reduce to powder, and then are transformed into chrysalides.

DERMESTES. *Genus 3.* **T**HE LARDARIUS, a species of this kind, is with difficulty prevented from entering into the repositories of the cook; it is a still more unwelcome intruder into the cabinets of the curious, where it is very destructive to birds, insects, and other subjects of natural history in a state of preservation.

The domestic **DERMESTES** is of all insects the most destructive to wooden furniture, where it is found in the larva state, in vast numbers, perforating it into those small holes that appear on the external surface, while the inner parts are reduced to powder.

PTINUS. *Genus 4.*

HISTER. *Genus 5.*

GERINUS. *Genus 6.* **T**HE water FLEA is that small animal which is seen describing circles on the surface of the water, by turning

on it with great swiftness. When an attempt is made to take it, it plunges below and eludes the grasp.

BYRRHUS. *Genus 7.*

SILPHA. *Genus 8.*

CASSIDA. *Genus 9.*

COCCINELLA. *Genus 10.* **T**HE LADY-BIRD of the English belongs to this genus, and is a beautiful insect; the elytra or cases are red, bordering on yellow, and adorned with two black spots, one in the middle of each. It is found on the leaves of trees; and, in its larva state, devours plant lice.

CHRYSOMELA. *Genus 11.*

HISPA. *Genus 12.*

BRUCHUS. *Genus 13.*

CURCULIO. *Genus 14.* **S**everal species of this tribe, though of a very diminutive size, are possessed of the most refulgent tints; but in the larva state, they are neither so beautiful nor inoffensive as to entitle them to the favour of man. While yet of a small size, they penetrate into the grains of corn, and as they grow larger, they increase their habitation by eating out the heart of the grain. As the number of these insects is great, the mischief they commit in granaries and corn-lofts is unspeakable. Having consumed the grain to the husks, they are transformed into chrysalides. Beans, peas, oats, and other grains afford them food and shelter. Some of them perforate plants, and dwell in the anterior parts; and others mine into the leaves of trees.

ATTELABUS. *Genus 15.*

CERAMBYX. *Genus 16.*

LEPTURA. *Genus 17.* **T**HE WOOD-BEETLE is one of the most beautiful of insects ; when viewed with a microscope, it appears like velvet inlaid with precious stones ; and if exposed to the rays of the sun, it shines with infinite splendor.

NECYDALIS. *Genus 18.*

LAMPYRIS OR FIRE-FLY. *Genus 19.* **I**T is the females of one species of these insects that is called in this country the GLOW-WORM. Two or three of these animals inclosed in a glass-vial, will give a light sufficient to enable a person to read in the darkest night. They are most frequently met with in woods and meadows in the month of June. The shining light which they emit, depends on a liquor placed in the lower extremity of the insect, which is more lively, shinning, and of a finer green when the animal is in motion. When crushed with the hand, this luminous substance shines on it, and continues to shine till it is dried up.

CANTHARIS. *Genus 20.*

ELATER. *Genus 21.*

CICINDELA. *Genus 22.*

BUPRESTIS. *Genus 23.*

DYTISCUS. *Genus 24.* **T**HE DIVER has obtained its name from the sudden escape it makes from danger, by plunging into water. By day they frequent the stagnated pools, from whence they issue in the evening to make excursions on the wing. If caught unguardedly, they are capable of giving a severe bite, as well as of wounding the hand with a sharp spine.

Plate II

GEN. XIV
ATTALABUS



GEN. XIV
CURCULIO



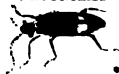
GEN. XVII
LEPTURA



GEN. XVI
CERAMBYCES



GEN. XVII
NECYDALIS



GEN. XX
CANTHARIS



GEN. XIX.
LAMPYRUS.



GEN. XXIII
IMPRESSIS



GEN. XXI
BLATER



GEN. XXII
CICINDELA



GEN. XXIV
DYTISCUS

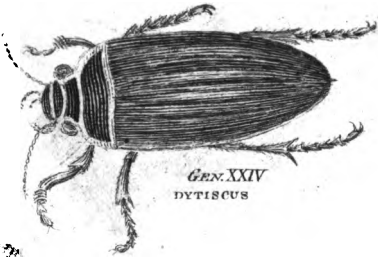
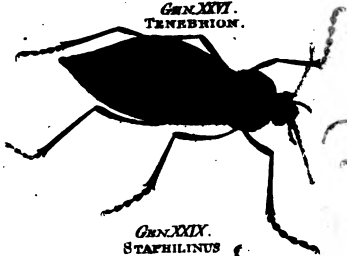
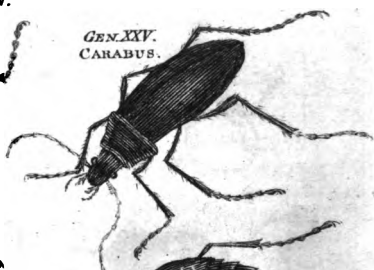


Plate IV.

GEN. XXVI.
TENEBRION.



GEN. XXV.
CARABUS.



GEN. XXIX.
STAPHILINUS.



GEN. XXVII.
MELOR.



GEN. XXX.
FORFICULA.

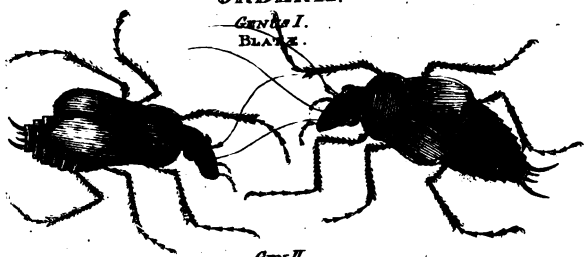


GEN. XXVIII.
MORDELLA.

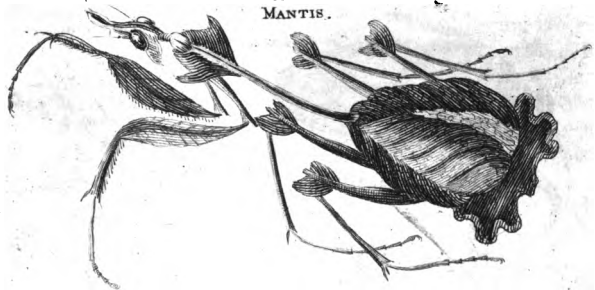


ORDER II.

GENUS I.
BLATT.



GEN. II.
MANTIS.



CARABUS. *Genus 25.* **G**ROUND-BEETLE. This family contains forty-three species, among which are some of the largest of British insects; their eggs are deposited under ground, or in decayed trees. In their caterpillar state, they are very destructive in gardens, where they devour every vegetable substance.

TENEBRIO. *Genus 26.* **D**ARLING. The larvæ of this genus are mostly found among rotten sticks or rubbish. In their perfect state, they enter houses and devour every sort of provision. Their principal resort is damp cellars, where they seem to be attracted by putrid air and darkness.

MELOE. *Genus 27.* **T**O this genus belong the blistering **CANTHARIDES**, to which man is perhaps more deeply indebted than to any individual belonging to this class of beings. In Spain and other southern parts of Europe, they are seen flying in vast swarms, and alighting upon trees or shrubs, whose leaves they devour. The odour exhaled from them, is so corrosive and irritating, particularly in the heat of the day, that the gathering of them is attended with danger. When collected and dried, they become so light, that fifty of them hardly weigh a dram, when they are ground down to the well known powder which constitutes the basis of the common blistering plaster.

MORDELLA. *Genus 28.*

STAPHILINUS. *Genus 29.*

FORFICULA. *Genus 30.* **T**HE EARWIG is seen every where, and even enters our inmost apartments. Its name has arisen from the notion that it entered into the ears of people while asleep, so as often to occasion madness or death; but the structure of the ear refutes these suspicions, though the attempt may have often cost the animal its life.

ORDER II.—HEMIPTERA ;

Where the wings are but half covered with crustaceous elytra.

BLATTA. Genus 1. **C**OCK-ROACH. This genus comprehends that well-known species of animals which frequents kitchens and bake-houses. It is ugly and deformed, but is rarely seen, though in our immediate vicinity, and of considerable size. When surprised in its haunts, it speedily escapes by running, its wings being unfit for flight, though the males of some of the species make awkward attempts at flying.

MANTIS. Genus 2. **S**OUTHSAYER. This singular insect has a small head, large eyes, and very long throat. It is called Southsayer from its mode of sitting upon its four hind-legs, and stretching out its two fore-legs as if it were unfolding the secrets in the bosom of futurity, and which the credulous multitude have not hesitated to believe of them.

GRYLLUS. Genus 3. **T**HIS destructive genus comprehends all the different kinds of locusts, and is divided into five tribes.

1. The domestic **CRICKET** has obtained its English name from the continual and tiresome noise which it produces in the neighbourhood of chimneys, where it is attracted by the heat.

2. The field **CRICKET**, in countries where they abound, issue at twilight from the subterraneous abodes where they have been pent up during the day, and make the whole fields ring with their noise.

3. The **MOLE-CRICKET** has a hideous aspect, and has acquired its name from the structure of its fore-legs, which are commonly broad and flat, and with which it digs under the ground, committing dreadful havock among the tender roots of plants ; and as it frequently

takes up its residence in hot-beds, it is a very great pest to the gardener.

4. The GRASSHOPPER is of a pale green colour, with the wings and crustaceous covers larger than the body. Its chirping notes proceed from a small hole under each wing, furnished within with delicate organs of sound. These notes seem to be expressions of mutual insults among the males, and are speedily succeeded by desperate contests. The female is furnished at the end of the body with a kind of double lancet, which she employs for digging holes in the ground or in wood, for the reception of her ova. Having dug fifty or more holes in regular rows, she deposits in each of them eight or ten eggs, and in this form they remain unaffected by the rigour of winter, till the genial heat of spring begin to vivify them; when about the beginning of May, each egg produces a larva about the size of a flea. They are at first white, but gradually become brown, when they undergo another transformation that introduces them to the open air in the shape of winged insects. They never survive the winter; but as the winter approaches die of total decay, or are killed by the cold.

5. The LOCUST, unhappily for many countries, is too well known. A swarm of locusts is frequently several miles long, and two or three yards deep. The annals of the East record devastations of them, that have threatened the human race. The scriptures compare an army, whose numbers are beyond computation, to a swarm of locusts. This scourge they describe as rising out of the earth, where they are produced; as pursuing a settled march for the purpose of destroying its fruits, and as co-operating with the divine indignation in punishing the sins of men. When the locusts take the field, they have, it is said, a leader, whose flight they observe, and whose motions they follow. They appear at a distance like a dark cloud, and as they approach obscure the light of day; and wretched is the district upon which they light. They ravage the meadows and pasture ground, strip the trees of their leaves, and the gardens of their promise. The visitation of a few minutes destroys the hopes of an

year, as it is not alone what they devour that is destroyed, but their bite contaminates vegetation; and, to use the expression of the husbandman, they burn whatever they touch. Dr Shaw in his travels through Africa, in 1724, witnessed the dreadful effects of these voracious insects in Barbary. Towards the end of March, they began to appear with a southerly wind; their numbers began to encrease so prodigiously, that during the heat of the day, they rose in swarms so large as to darken the sun. In the middle of May, they began to retire for the purpose of depositing their eggs in the drier plains of the interior country. About the middle of summer, the young, already ripe for devastation, made another incursion in several bodies of a vast extent; although then in the form of worms, they crawled forward, climbed the trees, walls, and houses, devouring every plant in their way. It was in vain that the inhabitants dug trenches through their fields, and filled them with water; in vain they collected large rows of stubble, heath, and other combustible matter to be set on fire on the approach of the locust. The trenches were soon filled, and the fires extinguished by the immense swarms that succeeded each other. Locusts continue in their larva state about a month, when they prepare for their transformation by attaching themselves to some twig by the hind legs, where, after some laborious efforts, they succeed in bursting their skins, when they remain for a little in a languishing state, till the air hardens their wings, and the heat of the sun invigorates, when they again resume their voracious habits, with an increase both of strength and agility. Such are these terrible insects in tropical regions. Happily for the inhabitants of Europe, the coldness of their climate, and humidity of their soil, are unfavourable to their production. In some of the southern kingdoms, their visitations, though far less frequent than formerly, are still an object of terror. In general, however, their incursions are fatal to these animals; they visit us and perish.

FULGORA. *Genus 4.* **L**ANTHORN-FLY. This insect possesses the singular quality of emitting flashes of light when it flies. Whether this phenomenon be occasioned by the waving of the transparent covers of the wings, heightened by the wings themselves, which are of a resplendent yellow, bordered with black ; it is certain, that in China a species of this tribe blazes with an amazing lustre, that marks the path of this animal wherever it flies, and creates in the minds of the timid and superstitious, terrible images of danger.

CICADA. *Genus 5.* **S**OME of the larvæ of this genus are concealed in a foam, which in some parts is called the Cockoo-spittal. During their residence in this spume, the animal acquires four tubercles on its back, which incloses the wings, and when these burst, the animal from a reptile becomes a winged insect.

NOTONECTA. *Genus 6.*

NEPA. *Genus 7.*

CIMEX. *Genus 8.* **B**UG. In the numerous race of nauseous insects, the common bug is well known as an hateful inmate. By day it lurks like a robber in chinks of the bed and furniture. It cautiously avoids the light even of candles or strong fire ; but as soon as darkness promises security, it issues from every crevice, drops from the roof, or crawls from the arras, and unhappy is the patient to whom these creatures direct their course. There are some persons whom they do not bite, but such as are selected for their repast, are soon covered with wounds, which swell to a considerable bulk, and are often painful. In vain the sufferer endeavours to relieve himself, or avenge his wrongs by killing some, and driving others away, famished multitudes renew the attack, and occupy their place, while the bed becomes unsupportable by their nauseous smell. In France, Italy, and Spain, the beds in most of the inns swarm with bugs of a great size, and active, and of a

cruel appetite, in proportion as the country is warm. The house bug is the only one of the genus that has neither wings nor elytra.

APHIS. *Genus 9.* **P**LANT-LOUSE. Few insects are more common than these, while few present greater singularities. At certain seasons they produce their young alive; and at others they produce eggs, which remain inactive till animated by the sun. Naturalists have made experiments on the production of these insects, that seem to be contradicted by the analogy of all animated nature. Take a plant-louse the instant it issues from its mother, shut it up carefully from all access to congenerous animals, and if it prove a female it will produce young. In like manner the young produced by this virgin louse, kept seperately, will produce an offspring. Bonnet observed nine successive generations of this nature in the space of three months; but it is not supposed that this singular fact could be extended much further, or prolonged beyond a season, without the intervention of the male.

CHERMES. *Genus 10.*

COCCUS. *Genus 11.* **A**MONG the insects of this genus, the COCHINEAL of Mexico is in great estimation as a scarlet dye, and for that purpose is cultivated with great care by the Indians. They plant trees around their house, and collect the insects, which they put into nests of moss or cotton, ten or twelve together, and fix them on the branches of the trees. These soon produce swarms of young, which disperse and feed among the joicy leaves, and there produce new generations, which are gathered and killed by a gentle heat, or by being immersed in warm water. Eight hundred and eighty thousand weight of this article is said to be annually imported into Europe, where it sells at a high price.

THRIPS. *Genus 12.*

Plate V..



GEN. VIII.
CIMEX.



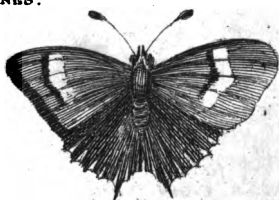
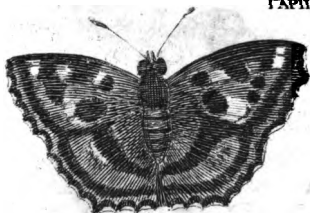
GEN. IX.
APHIS.



Plate VI.
ORDER III.



GEN. I.
PAPILIONES.

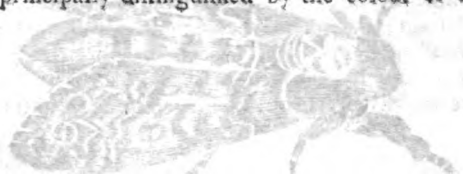


GEN. II.
SPHINX.

ORDER III.—LEPIDOPTEROUS INSECTS ;

With four Wings imbricated with downy Scales..

PAPILIO. Genus I. **BUTTER-FLY.** The beauties of this elegant part of the creation are well known, and there are few who can contemplate them without admiration. Barbut gives the following account of their various stages of existence : “ The caterpillar informs us in what manner it prepares for the lethargic-sleep, which is to serve as a transition to its metamorphosis. The period of its reptile life being accomplished, it changes its form to become an inhabitant of air. The chrysalis is at once the tomb of the caterpillar, and the cradle of the butter-fly. It is within a silken cod, or in a transparent veil, that this great miracle of nature is daily wrought. But how does the weak defenceless butter-fly, scarce unfolded into existence, make its way through the impenetrable walls that preserved it from insult during its torpid state. How will it bear the effulgence of light, and the keenness of air. Take one of their cods, make an aperture in it with a pair of scissars, fix it against a glass, observe the insect, you will perceive the organs gradually displaying themselves ; follow its operation with your eye, it struggles to break loose from its confinement, it disgorges a frothy liquor, that liquor serves to soften the end of the cod, and at length it yields to the butting of the insect’s head. By degrees the bar is removed, and the butter-fly springs forth ; the impression of the air acts upon its wings slightly apparent at first, but which afterwards expand with remarkable rapidity. The fly is now perfectly formed ; it gently flutters, then takes its flight, and pursues its many wanderings over the enamelled meads, or traverses the garden, and plunges its trunk into the cups of nectarous flowers. Of butter-flies, there are 273 species, principally distinguished by the colour of their wings.



SPHINX. *Genus 2.* **I**NSECTS of this genus have acquired their name from the singular attitude in which they are often seen in the caterpillar state; the hinder part of the body is then attached to a tree, while the rest of the body, like the sphinx in fabulous history, is turned up in an erect posture. The cod which they form previous to their metamorphosis, and into which the animal enters, is constructed below ground, of earth and grains of corn, enterwoven with threads of its own manufacture. When invested with the powers of a winged insect, it is less voracious than in the state of the caterpillar. It flies heavily from flower to flower, and sucks the liquor contained in them with its tongue, not being possessed, like the butter-fly, with a rostrum.

PHALÆNÆ. *Genus 3.* **M**OTH. While the butter-fly makes its appearance in the open day, the excursions of the sphinx are chiefly in the twilight of evening and morning, but the moth is a nocturnal insect.

All the caterpillars of Phalænæ having cast their skin, cover themselves with a cod composed of threads of different fineness and texture, in which they are transformed into chrysalides. The cods of some species are so firmly glued together that no operation can separate the thread. Some are too fine and others too coarse for any purpose in our manufactures, but the cod of the silk worm is so fine in its substance, and so adhesive in its quality, that if animals acquire a consequence from the convenience with which they accommodate man, this insect may challenge a large share. Our luxury has brought silk into such general request that it may now be deemed a necessary of life; the poor, in some countries at least, would find it almost impossible to procure the necessary articles of clothing were woollen stuffs worn by all those who are supplied by silk. Several laudable attempts have been made to rear the silk worm in Britain; but, from the want of a sufficient quantity of mulberry trees, the success has been very limited. Endeavours to produce raw silk in Britain seems the more worthy of encouragement as this country appears

to possess advantages, of which Italy and many of the silk countries are deprived. In Italy the chrysalides soon come to life, and it is then necessary to destroy them, lest by eating their way out they should injure the silk. In order to effect this they are collected and placed in heated ovens, where the silk, without singular caution, is apt to be damaged. In our climate, where every progression of the insect tribe is slower, there is sufficient time to wind off the silk without killing the chrysalides.

ORDER IV.—NEUROPTEROUS INSECTS ;

With four naked Wings.

LIBELLULA. *Genus 1.* **D**RAGON-FLY. The female dragon fly lays her eggs in the water, into which she lowers herself for about half an inch from the tip of the tail, by means of a twig or reed. The caterpillar that issues from them feeds on water insects, increasing in voracity and boldness as they acquire strength. The form and colour of these worms are extremely disgusting. It is nearly twelve months before they attain their full size, when they repair to the margin of the ditch or pond, and attach themselves to sticks or plants, where they remain for a period in inaction. The skin, which has gradually become parched and brittle, at last splits ; and the winged insect extricated from its confinement, begins to expand its wings, to flutter, and finally to launch into the air, with that gracefulness and ease peculiar to this majestic tribe. They are of various sizes, very voracious, and great enemies to the tribe of butter-flies.

EPHEMERA. *Genus 2.* **D**AY-FLY. Insects of this genus have been denominated ephemera or day flies from the shortness of their lives ; but the life of a day is in proportion to that of several animals of this class, what the lives of the antediluvian patriarchs were to ours. The period allotted

by nature to certain ephemera is only a few hours, though others of them survive one revolution of the sun. In this short but eventful period, they are transformed from chrysalids into flies; the work of procreation is performed, the female deposits her eggs; and these functions are no sooner over, than the active beings who perform them finish their operations for ever. Both the worm and chrysalids are aquatic, and provided with gills like fishes.

PHRYGANEÆ. *Genus 3.* **T**HESE insects, like the ephemera, before they become inhabitants of air, have been aquatic animals; their apartments in the water are singularly constructed in the form of a tube, the inward texture of which is silk, while it is outwardly composed of sand, straws, and chips of wood. When the animal finds its chrysalid state approach, it stops up the end of this tube with threads, through which the water may penetrate, while it prevents the approach of voracious insects. The common trout is one of its greatest enemies, and other fishes are so greedy of it, that, when stripped of its crust, it makes excellent bait.

HEMEROBIUS. *Genus 4.* **T**HE eggs of the **HEMEROBIUS** afford a curious spectacle to the observer, and were a long time deemed to be plants. Each of them is supported with a long pendicle, resembling the stalk of a plant, of which the egg appeared to be the flower. In this form, they are seen in clusters upon leaves, where, as soon as they are hatched, they find subsistence among the surrounding plant-lice. In about fifteen days the larva attains its full growth, when it weaves a silken cod of a clois texture, there the hemerobius lodges till its metamorphosis into a winged animal is completed. Its flight is slow and heavy; its smell nauseous; it inhabits garden plants.

MYRMELEON. *Genus 5.* **T**HE LION ANT. As this insect cannot advance in walking, its movements being made backwards,

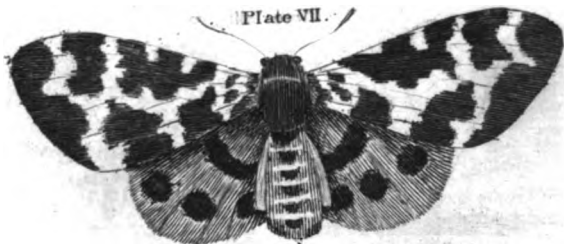


Plate VII.
Gen. III.
Phalena.



Order IV.
Genus I.
Libellula.

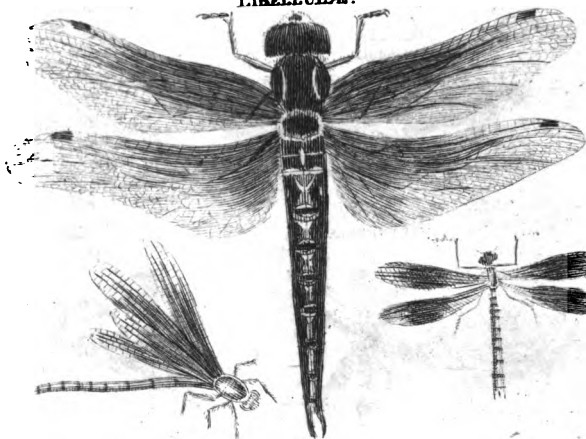
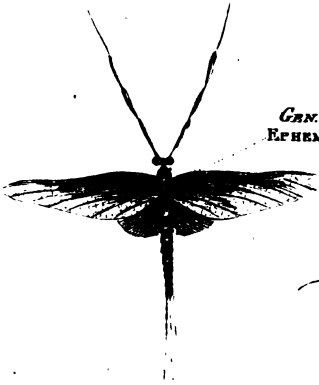


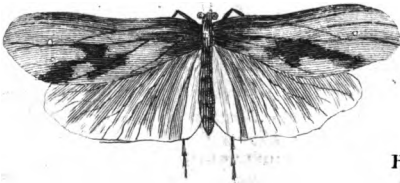
Plate VIII.



GEN. II.
EPHEMERA.



GEN. III.
PHRYGANEA.



GEN. IV.
HEMEROBIUS.

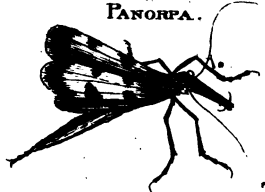
GEN. V.
MYRMELION.



GEN. VI.
RAPHIDIA.



GEN. VII.
PANORPA.



it procures its prey by stratagem. It digs a hole in the loose sand in the shape of a funnel, lying concealed at the bottom; and, unhappy is the creature, that, pursuing its journey, stumbles into the cavern, it is carried with the loose sand to the bottom, where the lion ant pierces it with the terrible forceps with which it is armed; if the victim is small, and the declivity does not give way with its weight, the lion throws showers of sand after it with his flattened head, which falling on the sides, force down the insect, till it comes within reach.

PANORPA. Genus 6.

RAPHIDIA. Genus 7.

ORDER V.—HYMENOPTEROUS INSECTS;

With four Membraneous Wings and a Sting.

CYNIPS. Genus 1. **G**ALL FLY. The Norway ink, so celebrated for its colour and permanency, is the produce of a gall of that country similar to that seen on our oaks in the month of June. The female gall fly deposits her eggs in the leaves and branches of trees, and those innumerable excrescences, which resemble the natural productions of the plants, and are sometimes taken for their fruit, are all the productions of different insects. These have sometimes a single cavity, where several insects associate together, others are divided into cells, sometimes to the number of an hundred, each containing a single insect.

TENTHREDO. Genus 2.

SIREX. Genus 3.

ICHNEUMON. Genus 4. **I**T is from the signal services performed by insects of this tribe in destroying caterpillars, plant-lice,
 Vol. II. **K**

and other insects, that they have derived their name. In some species, the female is furnished with a wimble, with which she perforates the mortar that constructs the nests of wasps and mason-bees, and deposits her eggs among them. Some are contented with gluing the egg to the skin of a caterpillar, while others penetrate through it, and lodge the egg in its body. In either case, when the egg is hatched, it feeds on the intestines of the animal, without destroying its vitals, till it is about to enter into the state of a chrysalis. Ichneumons are of various sizes, from such as can overcome the spider, to such as lodge their eggs in the plant-louse.

SPHEX. *Genus 5.* **S**AVAGE. These animals attack insects much beyond their own size, and that whether defenceless or armed, for they are provided with strong jaws, and a sting poisoned with a liquor fatal to every animal they engage. The savage seizes boldly on the insect he attacks, and gives it a stroke of amazing force. After this first encounter, he falls down, as if he himself had received the mortal blow, but it is only to rest from his fatigue and to observe the effects of his prowess. By and bye, the wounded animal dies, and, while yet palpitating with life, the savage devours those parts which he finds most palatable, leaving the greatest part entire. Having thus rioted in the blood of hundreds, their cells, which are dug under the ground, like the renowned caves of the giants, are crammed with multitudes of insects, destined to be the food of a future progeny.

CHRYISIS. *Genus 6.*

VESPA. *Genus 7.* **T**HE WASP. A commonwealth of wasps is founded by a single female, who, in spring, digs a hole in a dry soil where she hastily builds a few cells and deposits her eggs. This progeny, which in the space of twenty days goes through the states of larvæ and chrysalids are all mule wasps. No sooner are they come into existence than they fall to work, enlarge the hole, and go about in search of materials for building. With their teeth they

Plate IX.

ORDER V.

GEN. III.
SIREX.



GENUS I.
CYNIPES.



GEN. II.
TENTHREDO.



GEN. IV.
ICHNEUMON.



GEN. V.
SPHEX.



GEN. VI.
CHRYSID.



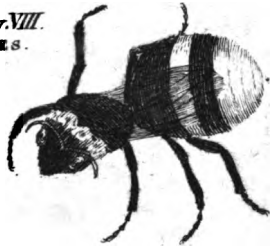
GEN. VII.
VESPA.



Plate X.



GEN. VIII.
APES.



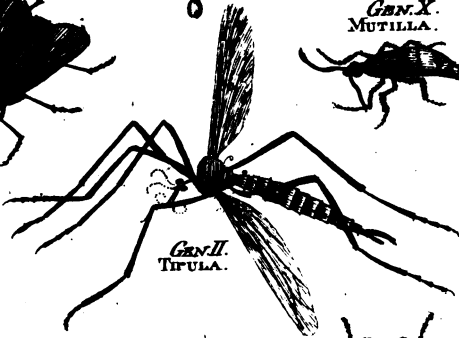
ORDER VI.
GEN. I.
OESTRUS



GEN. IX.
FORMICA.



GEN. X.
MUTILLA.



GEN. II.
TIPULA.



GEN. VI.
EMPIS.



GEN. V.
CULEX.



GEN. III.
MUSCA.



GEN. VII.
CONOPS.



GEN. IV.
TABANUS.

cut, hack, and tear small fibres of wood, which they moisten with a liquor they disgorge, and with this construct the coverings of their nest, which is generally of a round form, in colour resembling grey paper. The combs are ranged horizontally in different stories, and have all hexagonal cells in their lower surface. These are replenished with eggs by the female, and it is this brood that produces the males and females, and perfects the republic of common wasps. Of this fierce and rapacious insect, there are 159 species, only three of which are common to Britain. The hornet is the largest, and builds its nest in decayed trees. The small wasp builds its nest to the branch of a tree with a kind of band, which is in bigness from the size of an orange down to that of an egg.

APIS. *Genus 8.* **BEE.** Insects of this tribe are divided into several species, each of which has its peculiar genius, talents, manners, and disposition. Variety prevails in the order of their architecture, and in the nature of their materials. Some live in society, others dwell and work in solitude, building the cradles of their families, as the leaf-cutter bee does, with the rose-tree leaf; the upholsterer, with the gaudy tapestry of the corn-rose; the mason bee with plaster; and the wood-piercer with saw dust. There are fifty-five species, among which the valuable species of the honey-bee is possessed of such extraordinary instincts, that it has been the subject of many volumes. A hive of bees may be considered as a well-peopled city, in which are commonly found from 15,000 to 18,000 inhabitants. This city is purely a monarchy, under the command of a queen, who alone produces the numerous offspring, whose fidelity and attachment to her is admirable. The subject multitude consist of drones, which are males, and working bees, which have been supposed and called neuters. The working bees have the care of the hive, collect the wax and honey, fabricate and work up the wax, build the cells, feed the young, keep the hive clean, and drive away strangers. They are furnished with stings both as offensive and defensive weapons; for their honey and wax excite the envy of many greedy and lazy

insects. When they begin to work they divide themselves into four companies, one of which roves in the fields in search of materials, another is employed in laying out the bottoms and partitions of the cells, a third in making the inside smooth from the corners and angles, and the fourth company brings food for the rest, or relieves those who return with their respective burdens. But they are not constant to one employment, they often change the tasks assigned them, those that have been at work go abroad, and those that have been in the fields take their places. They seem even to have signs by which they understand each other; for when one is in want of food, it bends down its trunk to the bee from whom it is expected, which then opens its honey bag and lets some drops fall into the others mouth. Their diligence and labour is so great, that, in a day's time, they are able to make cells, which lie upon each other, numerous enough to contain 3000 bees. The plan and formation of these cells, which are six-cornered, are wonderfully contrived to gain room, and to save wax, as the circumference of one cell makes part of the circumference of another; and, as the cells are double in a comb, they are strengthened at the bottom by the angle formed by the bottom of three cells falling in the middle of an opposite cell. The combs are parallel to each other, and there is left between every one of them a space, which serves as a street, broad enough for two bees to pass by each other. As a portion of these combs are finished, the queen supplies the cells with eggs, which the drones impregnate. On the third or fourth day is produced a worm, which is fed by the working bees for about eight days, it is then sealed up in its cell with a lid of wax. In this receptacle it prepares a web of a sort of silk, and remains concealed in the state of a nymph or chrysalis for about 18 or 20 days, when the whole process of transformation is finished, and the bee discharges itself from confinement by forcing an aperture with its teeth through the covering of the cell. The cells of the drones are larger than those of the working bees, and those destined for queens are not only large, but they are detached from the rest, and hung on the side of a comb. When the hive becomes crowded with

the young brood, new swarms are formed under the conduct of a young queen. After the season for increasing their numbers is past, a terrible war is commenced by the working bees against the drones. This war affects not only the living, for the law that has pronounced the extermination of the males extends also to those who do not breathe; the hive is cleared of every egg, maggot, or nymph, and the general concern is to supply the magazines with honey for winter store.

FORMICA. *Genus 9.* **A**NT. Larger and smaller red ants are found in wood, or under heaps of dry earth, where they form well-regulated commonwealths, resembling, in many respects, the conduct of bees. Like them they are continually employed in labour, and have a large portion of their citizens neuters, whose sole employment, like that of the working bees, is collecting for the society. The males and females are furnished with wings, while the neuters are apterous.

MUTILLA. *Genus 10.*

ORDER VI.—DEPTEROUS INSECTS ; 1

Having only two Wings.

OESTRUS. *Genus 1.* **G**AD FLY. These insects are very troublesome to cattle. While some deposit their eggs under the skins, or lodge them in the noses of ruminating animals, particularly sheep, others eject them into the anus of the horse.

TIPULA. *Genus 2.* **T**HIS genus is called the crane fly from its enormous length of legs, by which it is enabled to walk through grass as men are assisted by stilts to walk through marshy grounds.

K. 3.

MUSCA. *Genus 3.* **F**LY. About one hundred and thirty different species of flies are enumerated by naturalists, which are diversified in their external form, their structure, their organization, their metamorphosis, their manner of propagating their young, and in providing for posterity. A full explanation of these different parts of their œconomy would require a large volume. Some are supported by vegetable substances, while others are carnivorous, and among the latter there are some who only devour flesh in a state of putrefaction, while dung and putrid vegetables are the food of others. In Spain they were formerly so numerous that the fly catcher was not only a profession, but a number of men were commissioned by government to give chase to these troublesome invaders. In all hot countries they multiply to a degree almost intolerable, and are extremely destructive to butcher meat and other kind of provisions.

TABANUS. *Genus 4.*

CULEX. *Genus 5.* **G**NAT. In their larva state these animals are aquatic, and furnished with fins. In summer all stagnated waters are full of their worms, that are afterwards transformed into chrysalides, in which state they remain three or four days, when they become gnats and ascend into a new element. No sooner does the chrysalis reach the surface of the water than the insect, with its head, bursts the shell which then serves it for a boat, of which its wings are the sails. If, in this critical moment, a breeze arises it proves to these pigmy sailors a dreadful hurricane, for it oversets the little bark, and the insect not being yet disengaged from it, suffers a fatal shipwreck. If, however, the weather proves calm, the gnat makes a more prosperous voyage. Having time to dry his wings before leaving the boat, he is enabled to mount into the air, where, contemptible as he may seem, he soon becomes the inveterate tormentor of the lords of the creation.

EMPIS. *Genus 6.*

CONOPS. *Genus 7.*

ASILIS. *Genus 8.*

BOMBILIUS. *Genus 9.*

HIPPOBOSCA. *Genus 10.*

ORDER VII.—APTEROUS INSECTS.

Without Wings.

LEPISMA. *Genus 1.*

PODURA. *Genus 2.*

TERMES. *Genus 3.* **T**HE TERMES PULSATORIUS is so called from being supposed to imitate the ticking of a watch by striking its head against the wainscoat in the dead of night. This noise, so alarming to some superstitious minds, has been called the *death watch*.

PEDICULUS. *Genus 4.* **L**OUSE. Almost every animal and vegetable is frequented by its particular louse, although only about fifty different species of this tribe have found their way into the systems of natural history. Even man, whose fancied prerogatives lead him to boast of being lord of the creation, has often the mortification of being trampled upon by the most despicable of all animals. Of the human louse one kind inhabits the head, and another the body. Infants and children are most infested with the former of these kinds, dirty and old people with the latter. The lousy disease was fatal among the ancients; but, in our climate, few are attacked by these a-

animals, except such as by sloth and nastiness invite to company.

PULEX. *Genus 5.* **FLEA.** This blood thirsty tri like the former, fattens the expence of the human race. Their eggs are deposited upon blankets or among the down of animals, and in four or five days give birth to a very minute worm which feeds upon the greasy fur, it then spins a silk cocoon in which it lies dormant for about a fortnight, after which it bursts from its confinement endued with power to disturb the peace of an emperor. By the elasticity of its legs it can spring two hundred times the length of its own body.

ACARUS. *Genus 6.* **TICK.** The dysentary and the itch, two insupportable diseases are both occasioned by some of the smaller acarins insinuating themselves into the human body. In the latter of these complaints, they dig under the skin and occasion that raging prominence with which the unhappy patient is afflicted.

PHALANGIUM. *Genus 7.*

ARANEA. *Genus 8.* **THE SPIDER.** In this country, where all the insect tribe are kept under by the coldness of the climate, or by human assiduity, the spiders are small in size, and comparatively few in number. Here they are an inoffensive as well as a humble tribe, but in the warmer regions of Africa and America they are hideous and terrible. The abdomen of the Martinico spider is as large as a hen's egg, and covered all over with hair, its web is strong and its bite is dangerous. The spider has eight eyes placed all around the head, immoveable, destitute of eyelids but covered with a horny transparent substance. The mouth consists of two toothed claws, from which, at a small hole a little below the point, the animal emits a poison, which, though harmless to us, is capable of instantly destroying his prey. Every one is acquainted with his invention of spreading a net for the

GEN. IX.
BOMBYLIUS.



GEN. VIII.
ASILUS.



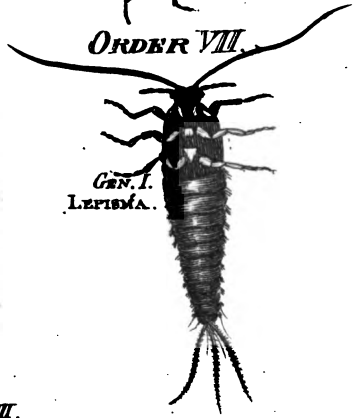
GEN. X.
HIPPOBOSCA.



GEN. II.
PODURA.



ORDER VII.



GEN. I.
LEPIDMA.

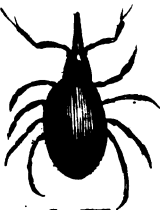
GEN. IV.
PEDICULUS.



GEN. III.
TERMES.

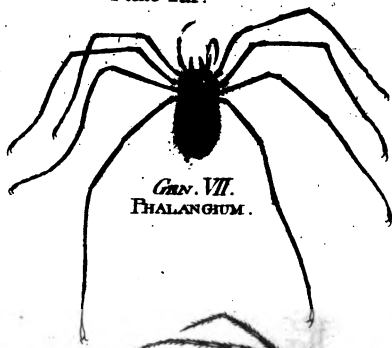


GEN. VI.
ACANUS.



GEN. V.
PULEX.

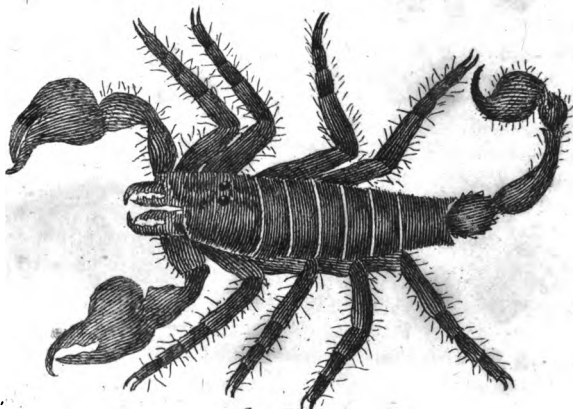
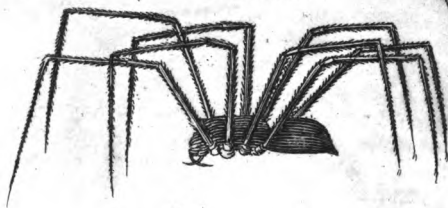




GEN. VII.
PHALANGIUM.



GEN. VIII.
ARANEÆ.



GEN. IX.
SCORPIO.

fly, an insect which, without this artifice, must for ever escape him. The web is composed of threads which are scarcely visible to the naked eye, but contain many filaments, spun from a glutinous substance by means of five dugs or teats with small orifices, capable of being contracted or dilated according to the fineness of the intended thread. The position of this web is generally well chosen, being placed in the corners of rooms, the sides of windows, or among trees where flies are most frequent and plenty, and which are devoured with all the ferocity that distinguishes the lion or the tiger.

SCORPIO. Genus 9. **T**HE SCORPION, like the spider, has eight eyes, but its tail is lengthened out by different articulations, and terminates in a crooked and sharp sting. Happily for Britain none are found but one rare species no bigger than a louse. In Italy, Spain, and the south of France, they are frequently three inches long, and are considered as the greatest pests that torment mankind. But the size and malignity of the scorpions of Europe may be deemed trifling when compared with that of the African monsters that are distinguished by this name. Along the Gold coast they are sometimes larger than a lobster, and their sting is inevitably fatal. From the language of scripture too we find, that in the east, these animals have long been formidable to mankind. In Batavia they are sometimes twelve inches long, and in removing furniture, behind which they skulk, there is the utmost danger of being stung. But according to M. de Maupertuis, who bred a great number together and let them loose on dogs and other animals, in order to ascertain the venom of their sting, though the poison was sometimes so powerful as to swell the whole body, occasion violent retchings, convulsions, and death, at other times, whether from the difference of food, or some other cause, the sting was followed by no dangerous consequences.

CANCER. Genus 10. **C**RAB. There are eighty-seven species of crabs, which in general are aquatic animals, whose residence is in the sea; some, however, frequent rivers, and in Ame-

rica there are some species wholly terrestrial. The mon lobster belongs to this genus. It is found all at the shores of Britain, frequenting particularly the ground, where it is caught by a creel or willow that admits of its entering by different apertures so frusted that they preclude any return. These and change their external coverings once a year.

ONISCUS. *Genus 11.* **S**OME species of this genus are aquatic, and found in wells and stagnated pools, while others inhabit houses and walls where they burrow among the and in some places are called flaters, and gathered for medicinal uses.

SCOLOPENDRA. *Genus 12.* **O**NE kind of this genus has less than an hundred feet on each side. In general feet of these insects are as numerous as the segment to which their bodies are divided. Of this hideous there are eleven different species, distinguished by form, size, and colour. Some live below the bark of decayed trees, or are found below stones and gar boxes; others inhabit the fresh and salt water, and are remarkable for their quick progressive motion. In East Indies and America they are sometimes six inches long, and as thick as the finger.

TULUS. *Genus 13.* **T**HIS tribe nearly resembles the former, the feet on each side are twice as many as the segments of the body.



Plate XIII.

GEN. X.
CANCER.



GEN. XI.
MONOCULUS.



GEN. XII.
ONISCI.



GEN. XIII.
SCOLOPENDRA.



GEN. XIV.
JULI.







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